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THE
MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—9TH YEAR. SYDNEY: SATURDAY, MARCH 4, 1922. No. 9.

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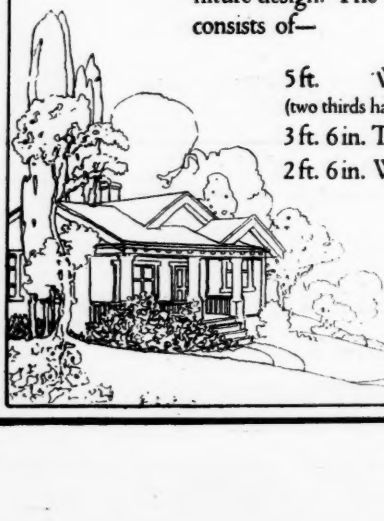

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CÆSAREAN SECTION.[1]

BY R. H. MORRISON, M.B., CH.M. (EDIN.),
Honorary Surgeon, Women's Hospital, Melbourne.

UP to quite recent date Cæsarean section was only performed on patients in whom it was impossible to deliver a living child by the natural passages, owing to pelvic contraction or obstructing tumour. Asepsis and improved technique in abdominal surgery have enabled and justified the obstetrician with surgical experience to extend very considerably the indications for delivery by section. With each succeeding year the tendency is towards allowing a smaller percentage of patients to be delivered without some interference, such as by induction of labour, by forceps or by some surgical operative procedure. Granted that the indications have been extended, we must be prepared to show real justification for every abdominal section we decide to undertake. The indiscriminate employment of operative interference is most strikingly illustrated by the vogue recently popularized in the United States by Potter, of Buffalo. In twelve months Potter personally attended 1,113 patients, of whom he delivered 920 by version and 80 by Cæsarean section.

[1] Read at a meeting of the Victorian Branch of the British Medical Association on November 8, 1921.

This evening it is my privilege to invite a discussion on the relative indications for Cæsarean section as the method which should be adopted in certain cases of (*i.*) slight disproportion between the fœtal head and the pelvis, (*ii.*) *placenta prævia* and (*iii.*) eclampsia.

Disproportion Between Fœtal Head and Pelvis.

There is much difference of opinion as to whether or not child-bearing is to be classed as a pathological process. Let us then look on it as a physiological function which is very prone to become pathological and which certainly calls for very careful prematernity supervision! No one can dispute the fact that every case of labour must be treated as a surgical case. It is to the perfection of asepsis following on the antenatal care that we must look to diminish the mortality, the morbidity and the after-effects of labour. In discussing this subject, the fundamental principle must be kept in mind of endeavouring to have a viable child delivered with the minimal amount of trauma and pain to the mother. Let me first consider the cases of moderate disproportion, which may be: (*i.*) Normal-sized pelvis with oversized child, (*ii.*) moderately contracted pelvis with over-sized child, (*iii.*) moderately contracted pelvis with normal-sized child.

Ten years ago I read a short paper before the Medical Society of Victoria, in which I stated that

each half-inch diminution of the true conjugate gave its own indication for treatment. Riper experience has shown me how absurd such a statement was. It was the valour of ignorance. In the first place, it is difficult to measure a pelvis internally with accuracy and, in the second place, it did not sufficiently take into account the size of the fœtal head. In a borderline case it is only by the estimation of the relative size of the head to the brim (by Müller's or Kerr's method, under anæsthesia) that our individual judgement, based on experience, can make us decide on the correct course to adopt in each particular case.

What course may be taken? The patient may be allowed to go into labour and perhaps forceps may be applied. Or labour may be induced before term. Or Cæsarean section may be performed. Or, lastly, the pelvis may be enlarged by pubiotomy.

If there be any doubt as to possibility of birth by the natural passages, the patient should be given the test of labour. Progress should be carefully watched and any examinations (after the first one) should be made by the rectum in order to lessen the risk of infection in case of Cæsarean section later. It is possible to tell by rectal examination the amount of dilatation, the engagement and the advance of the head.

As to induction of labour, the calculation as to the duration of pregnancy is uncertain and rather than decide to induce at a particular date, it is better to rely on Müller's or Kerr's method. It is essential in order to have a child as mature as possible to induce labour as late as possible. The other main objection, sepsis, is diminished by the fact that it is possible to induce labour in very many cases by castor oil and quinine without having to resort to the introducton of bougies. In cases in which forceps have been applied and the head cannot be pulled through the brim, may I emphasize the great value of putting the patient in Walcher's position? Many a head has been saved by this expedient. Before applying forceps in a small pelvis or even in any primipara the vaginal canal and perineum should be well stretched. Remember that it is not sufficient to know that the head will enter the brim; be sure that it can pass the outlet!

In the event that the head will not pass through, pubiotomy would be the method of choice rather than craniotomy. The latter operation should seldom be necessary. In our Women's Hospital in 1920 it was performed seven times. If the pelvis be accurately measured and the fœtal skull gauged, it should be the rarest of emergency operations.

This leads me to ask what should be considered the rights of the unborn babe? In cases of contracted pelvis I should certainly place them on an equality with the mother's. It is sixteen years since I perforated and crushed the head of a living child and, as the circumstances were unusual, I may be pardoned for detailing them. I was called to the Women's Hospital to see a woman who had been admitted in labour with a small pelvis. I told her she should have Cæsarean section. She refused. She sat up in bed and dramatically called those present to witness that she absolutely refused to be cut open, nor could the priest make her change her mind. I was not sure of my position in such a case, so retired to the residents' room to think it over. I decided to do craniotomy, as my conscience approved of sacrificing one life in the desire to save the other. She recovered.

Cæsarean section is one of the most straightforward of abdominal operations and that fact has undoubtedly led to its employment in unsuitable cases. These mistakes can only be avoided by more exact diagnosis, by experience and by exercise of better judgement. If we were to do Cæsarean section as a primary or elective and never as a secondary or emergency operation, our mortality should only be fractionally higher than in any clean abdominal case.

The percentage mortality may be taken as 2% in primary and up to even 30% in secondary cases. It is found that the mortality increases in the following circumstances: (*i.*) With the length of labour—1% for every two hours (De Lee). (*ii.*) With the rupture of membrane. (*iii.*) With the number of vaginal examinations made. (*iv.*) With attempts at delivery *per vaginam*. (*v.*) With the lack of skill of the operator.

What are the objections usually advanced against Cæsarean section? They are its mortality, its abdominal complications, the adhesions which may be formed and, lastly, the risk of rupture of the scar.

As regards mortality, Routh in a series of 1,282 cases found it to be 2.9% in clean cases and 17% when the membrane had ruptured before operation. These statistics are eleven years old. We must go abroad for large figures. Freund cites 551 operations without a maternal death. Paul Bar cites a series of 275 operations. The last ninety-seven mothers left the hospital nursing their infants.

Abdominal complications and adhesions incidental to any cœliotomy should not be seriously advanced as a contraindication to an otherwise suitable condition. Adhesions are the more frequently encountered with each succeeding abdominal section, but in my experience they have never given me trouble.

Rupture of the uterine scar has been shown to occur in 1.8% of all cases in pregnancy or labour following a previous Cæsarean section. It is estimated that the liability to rupture is 5%. Some authorities, with the view to minimizing such a risk as rupture, now advocate a transverse incision in the lower uterine segment, the chief advantages claimed being that it is more at rest during the puerperium and that in subsequent labour it is not subjected to strain until labour is far advanced.

The operation performed in the vast majority is the classic type with anterior longitudinal incision. The transverse incision at the fundus was found to have ruptured more frequently. In infected cases most British surgeons still prefer removal of the uterus after abdominal section. The continental surgeons prefer the extraperitoneal route, by either Latzko's method or the double flap method. I have not known except by reading of any cases in which the scar has ruptured. Whitridge Williams, after an exhaustive study of cases, says that in a perfectly healed scar muscle is perfectly regenerated and no fibrous tissue found, but if infection occurs, union is by fibrous tissue and without regeneration

of the muscle. It is easy to understand that rupture may occur if we are lax in asepsis and technique. Great care should be taken to approximate the incised wound accurately by suturing in layers; three or preferably four layers of chromicized gut should be used. For some years I have used only gut. Rupture is said to occur less frequently if one layer of linen or silk be used. Recently Lennie cited several cases in which silk had to be removed later; in one 17.5 centimetres (seven inches) of suture were removed vaginally eighteen months after operation. Accuracy in suturing is more difficult if the placenta be on the anterior wall, as it is then more friable and vascular.

In potentially infected patients it is wiser to push the placenta through the cervix instead of out through the wound.

Polak says there is no danger from the amniotic fluid spilling into the abdominal cavity. Any infection travels up by decidua and endometrium.

Craigin, one of the greatest obstetricians, said: "Once a Cæsarean, always a Cæsarean!" but I cannot subscribe to that dictum. A subsequent pregnancy and labour must be carefully watched and I have known cases in which the patient has had spontaneous delivery later.

A question is frequently asked as to sterilization. We must be careful not to acquiesce too readily in the patient's desire for sterilization. She or her husband or both may later regret the decision arrived at, or she may marry again and her new husband may wish children. Has not the State some claim to be considered in such cases?

Placenta Prævia.

Cæsarean section is gaining greater recognition and is being more often used in certain cases. There is no doubt it improves the chances of delivering a live child and gives the most satisfactory results both to mother and child in a case where the placenta is central in a primipara not in labour or with a rigid cervix and at or near full term. The maternal mortality in all cases of *placenta prævia* may be estimated at 10% and the fœtal at 65%. The former is not improved by Cæsarean section, but the latter is reduced to 15% in selected cases.

Eclampsia.

In eclampsia Cæsarean section offers many advantages. Its success depends largely on it being done as a primary operation. Freund, of Berlin, states that of 551 patients operated on within one hour of onset, all recovered. If we have a patient with the premonitory symptoms of eclampsia, in whom eliminative and other treatment has failed to ward off a convulsive seizure, I think she should certainly have Cæsarean section performed early, especially if she be a primipara and not in labour. Treat her as you would a patient with acute appendicitis, with the superadded incentive of delivering a living baby. On the other hand, if she were in labour, having good pains and a dilatable cervix, I would leave her alone until such time as forceps could be used to expedite delivery.

We know that eclamptics are not good subjects for anæsthesia nor for trauma; they stand shock badly. These points must be taken into consideration when arriving at a decision as to the method of delivery.

The other conditions which may possibly indicate Cæsarean section are accidental hæmorrhage, breech presentation in an elderly primipara, ventro-fixation, prolapse of the cord, cardiac disease with failure of compensation.

If a woman be six weeks or more pregnant, profoundly ill and it is necessary to empty the uterus rapidly in order to save her life, then do so by the abdominal route. It is certainly the quickest method; it requires less anæsthesia and gives rise to less shock.

In conclusion, I would state that the indications for Cæsarean section in any doubtful case can only be determined by our individual preference and experience. By exercising our judgement, we must take not only the patient herself into consideration, but also the surroundings and our operative ability. In favourable circumstances we may justify the Cæsarean section and offer the best chance for the mother and child.

CÆSAREAN SECTION.[1]

BY H. CAIRNS LLOYD, M.D., F.R.C.S.E.,
Honorary Surgeon, Women's Hospital, Melbourne.

CÆSAREAN SECTION is without doubt an operation of very great value to us as obstetricians, as well as to humanity, in saving the life of both mother and child. When it is performed with discrimination, I have nothing but praise for it.

It is very dramatic and spectacular, in these days of asepsis very easy to perform and its results to both lives are all that could be desired. In addition, it is most satisfactory to the obstetrician in that it saves his time, relieves him of weary hours of waiting and night calls, as well as increasing his remuneration and no doubt getting him more gratitude than he is accustomed to for far more onerous and often more anxious work.

But are we not likely to forget there is such a thing as an art of obstetrics? Are we always justified in putting our patients to the danger of a major abdominal operation when an equally good result may be obtained by other means? Are we not extending this treatment to cases which can be at any rate as satisfactorily terminated by well tried manipulations and with, I think, better results immediate and for the future of the patient? Is a woman with a long abdominal scar and another long scar in her uterus in such a good state for further pregnancies as one without these drawbacks? Or are we to leave her in such a condition that she can have no more children? Is it unknown that a uterus has ruptured in a subsequent pregnancy after this operation?

During the seven years of the mastership of the late Dr. Purefoy at the Rotunda Hospital, for a large part of which I had the honour of being associated with him, there were 11,098 women treated in

[1] Read at a meeting of the Victorian Branch of the British Medical Association on November 8, 1921.

the Intern Department and 14,818 in the Extern, a total of 25,916 patients, with a total of eighty deaths or one in 324. These deaths are from all causes and it must be remembered that many were seen only after a period of neglect, when they were beyond hope. This is a result of which any hospital might well be proud. Among these 25,916 patients, six were treated by Cæsarean section.

While Honorary Surgeon to the Obstetric Department of our own Women's Hospital, I had under my care 2,914 patients and performed Cæsarean section four times, or once in 727 cases. The maternal deaths were sixteen, or one in 182 for the total number of patients. I may quite safely say that none of these deaths was in any way avoidable by Cæsarean section.

For what condition has this operation been suggested? The following is the list: Contracted pelvis, *placenta prævia*, eclampsia, cardiac disease, fibroids, post-operative conditions and cancer of the cervix.

Contracted Pelvis.

The first requirement in this condition is surely a careful and accurate measurement of the pelvis. In my opinion the taking of the external measurements is of little or no value, owing to the deductions which must be made not being constant. The only figures to be depended on are given by internal measurements got by Skutsch pelvimeter in doubtful cases. Its drawback is that it requires some amount of skill to get these correct. Not only must the conjugate diameter be estimated, but also the transverse. It is possible that when these are normal, the trouble may be at the outlet, as occurred in at least one of our cases at the Women's Hospital. It must be borne in mind that a much less contraction may make delivery impossible in a general contraction than in a flat pelvis.

It was formerly taught that the absolute indication for the operation was a *conjugata vera* of 5.5 centimetres. Williams holds that a relative indication exists with eight centimetres for flat and nine centimetres *justo minor*. In the Rotunda reports spontaneous delivery of a three kilogram (six and a half pounds) child is recorded with a pelvis having a *conjugata vera* of 6.5 centimetres and a transverse diameter of 10.5 centimetres.

For moderate degrees of contraction it seems to me that induction of labour is much to be preferred. It is safe for both mother and child, can be repeated on as many successive occasions as necessary, is quickly recovered from and leaves none of the complications that may be associated with an abdominal operation.

I have records of thirty-six cases at the Rotunda with only one child lost. In this case the induction was unduly delayed. In my own practice I can only remember losing one infant. This occurred four days after birth in a doubtfully specific case.

Two of the Rotunda patients had previously lost six children each by destructive operations and one had six and the other seven successive living children after induction, with normal recoveries.

The time for induction can be determined by careful measurements and choosing the time when the fœtal head just fails to enter the brim.

Placenta Prævia.

I come next to *placenta prævia*. My Rotunda records show fifty-nine cases with two deaths of mothers. I well remember these. They both occurred in the same month. Both patients were sent in moribund and septic, blanched from the loss of blood, which had been allowed to continue for days untreated, and in one case the placenta, a central one, was lying in the vagina.

The fœtal mortality was 32%, which is high. But it must be remembered that a considerable number of the patients were sent into hospital too late to save the child by any treatment whatever.

In every case this condition was treated by plugging the vagina if the *os uteri* was undilated and podalic version, delivery then being left to Nature. Any attempt at *accouchement forcé* is almost sure to cause disaster.

In my opinion, if the life of the child is of the utmost importance, Cæsarean section in the case of central *placenta prævia* is permissible. In the case of lateral placenta the prospect of the child and for the mother is so good that I would not advise it. The only treatment necessary in these cases is usually rupture of the membranes, on which hæmorrhage ceases and labour is terminated normally.

Accidental Hæmorrhage.

In accidental hæmorrhage there can be no question as to the inadvisability of this operation, for in a severe case the child is already dead and the condition of the uterus is such that the evacuation of its contents would inevitably kill the mother from hæmorrhage. I have known hysterectomy to have been done in on of these cases, but the mother was dead at its conclusion.

Eclampsia.

Eclampsia causes the obstetrician probably more anxiety than any of the other conditions he meets. In this country it is astonishingly frequent, probably because of the large amount of meat consumed, the inefficient clothing worn and the changeability of our climate. Whereas twenty-four cases occurred in 11,098 patients in Dublin, thirty-two came under my care in 2,914 patients at our Women's Hospital, a very astonishing difference. The mortality in Dublin was 25%. At the Women's Hospital it was 44%.

I am not prepared to condemn this operation in this condition, but I do know that a case has been put on record in which after its performance as many as one hundred convulsions occurred. I can well imagine the feelings of the surgeon. Have we any assurance that until we have depleted the system of the poison causing it, the convulsions will cease? If not, it is our duty first to attempt to attain this end. And how many of the patients apparently saved by this treatment would have survived if otherwise treated?

Cardiac Disease.

I have not the faintest idea how many women in these two lists suffered from some form of heart

trouble. But it has always been a marvel to me on going round the wards to find so many patients who have passed through their labours in whom cardiac lesions more or less advanced exist and who have shown little or no distress during the confinement. The condition is often not suspected and is only discovered by chance afterwards. One case in particular is impressed on my mind. It was that of a young married woman with advanced aortic and mitral disease, who was sent to me by two of our leading physicians, both of whom considered it was impossible for her to carry on any further; they thought that labour ought to be induced. On consultation, it was decided to wait for a month, if possible, keeping her under close observation in the meantime. This was done and, owing to apparent failing compensation, induction was done. I warned the husband of the danger of any further pregnancy and told him, if one occurred, he must take the responsibility as far as I was concerned and that she would have to go on to term. About a year later he brought her to town again pregnant and with the heart apparently in the same condition. This time she went to term and delivered herself, with some help and without distress, of a living child. I saw her some time later very pleased with herself and her child.

Is the strain thrown on the heart so great by a normal labour as to cause serious danger? Cannot the strain be very much lessened by careful management? I do not think that the efforts of the first stage affect the heart very greatly; an anæsthetic is well borne and it throws the accessory muscles out of gear; the forceps will do the rest. Do we not think twice before we subject any patient with cardiac disease to a major operation? And do our anæsthetists thank us when we ask them to take the risk?

In my opinion the risk of the operation and after-treatment is at any rate as great as of the labour. Of course, if compensation is failing, the patient cannot be allowed to go on without help; but this usually occurs somewhere about the mid-term of pregnancy and the question of Cæsarean section does not arise.

Fibroids.

In this some amount of experience is necessary to decide on the course of treatment. One sees so many cases of large tumours and multiple growths which, while they may cause some delay and possibly anxiety in the third stage and puerperium, do not prohibit the delivery of more than one living child, that one is loath to suggest an abdominal section which is almost inevitably terminated by hysterectomy.

Post-Operative Conditions.

There is one condition of which the surgeons of to-day have no cause to boast. I have seen several cases of pregnancy in women who have had, often previous to marriage, an abdominal section terminated with abdominal fixation of the uterus. In at least four of these the operation has been performed in the patient's teens. One of them I had seen previous to operation and know that she had an acute anteflexion. Yet she was sent to hospital from which after a long convalescence she emerged with a large scar on her abdomen and an adherent uterus. She subsequently married and has had two children after difficult labours, due to the condition in which she is left. All are not so lucky. Two I know of have lost their lives through rupture of the uterus, the state of affairs not being recognized sufficiently early for treatment. One underwent Cæsarean section on two occasions, the surgeon on the first having omitted to liberate the attachment.

In none of these cases, I am glad to say, was a gynæcologist the original operator. I cannot imagine any operator with a knowledge of obstetrics leaving a parous woman, much less one in early life, in such a dangerous state.

I have recently had under my care a patient who had an abdominal fixation done at the age of fifteen. While still young she married and not long afterwards became pregnant while living in the country. In due course labour commenced. This was allowed to continue for a week, when a surgeon was summoned from town, to find a macerated fœtus and the mother in a very grave condition. A Cæsarean section was done and the uterus freed with, fortunately, a recovery of the mother. She has since been delivered of a 4.3 kilogram (nine and a half pounds) child after a very long labour followed by a free *post partum* hæmorrhage, which, in my opinion, was largely due to the section and weakening of the uterine wall.

In conclusion, it is my opinion that there should be very definite indication before this operation is decided upon, that the possibility of the delivery of the mother with safety to both herself and her child by any other means should first be excluded and that the following be essentials:

(*i.*) That it be a primary operation.
(*ii.*) That there have been no previous attempts at delivery.
(*iii.*) That there have been no frequent internal examinations.
(*iv.*) That no septic condition is present.
(*v.*) That both mother and child are in good condition.
(*vi.*) That the presenting part is not fixed.
(*vii.*) That labour has recently started or has not yet begun.
(*viii.*) That the child is at least at a viable age.
(*ix.*) That there is every hope that both will survive operation.

JEAN PAUL MARAT.

By C. MacLaurin, M.B., C.M., F.R.C.S.E.,
Sydney.

It has always been the pride of the medical profession that its aim is to benefit mankind; but opinions may differ as to how far this aim was fulfilled by one of our most eminent *confrères*, Jean Paul Marat. He was born in Neufchatel of a marriage between a Sardinian man and a Swiss woman and studied medicine at Bordeaux; thence after a time at Paris he went to London and for some years practised there. In London he published "A Philo-

sophical Essay on Man," wherein he showed enormous knowledge of the English, German, French, Italian and Spanish philosophers; and advanced the thesis that a knowledge of science was necessary for eminence as a philosopher. By this essay he fell foul of Voltaire, who answered him tartly that nobody objected to his opinions, but that at least he might learn to express them more politely, especially when dealing with men of greater brains than his own.

The French Revolution was threatening; the coming storm was already thundering, when, in 1788, Marat's ill-balanced mind led him to abandon medicine and take to politics. He returned to Paris, beginning the newspaper *L'Ami du Peuple*, which he continued to edit till late in 1792. His policy was simple and touched the great heart of the people. "Whatsoever things were pure, whatsoever things were of good repute, whatsoever things were honest"—so be it that they were not Jean Paul Marat's; those things he vilified. He suspected everybody and constantly cried *"Nous sommes trahis"*—that battle-cry of Marat which remained the battle-cry of Paris from that day to 1914. By his violent attacks on everyone he made Paris too hot to hold him and once again retired to London. Later he returned to Paris, apparently at the request of men who desired to use his literary skill and violent doctrines; he had to hide in cellars and sewers, where it was said he contracted that loathsome skin disease which was henceforth to make his life intolerable and to force him to spend much of his time in a hot-water bath and would have shortly killed him only for the intervention of Charlotte Corday. In these haunts he was attended only by Simonne Everard, whose loyalty goes to show either that there was some good even in Marat or that there is no man so frightful but that some woman may be found to love him. Finally he was elected to the Convention and took his seat. There he continued his violent attacks upon everybody, urging that the "gangrene" of the aristocracy and bourgeois should be amputated from the State. His ideals of political economy appear to have foreshadowed those of Karl Marx—that the proletariat should possess everything and that nobody else should possess anything. Daily increasing numbers of heads should fall in the sacred names of Liberty, Fraternity and Equality. At first a mere 600 would have satisfied him, but the number rapidly increased, first to 10,000, then to 260,000. To this number he appeared faithful, for he seldom exceeded it; his most glorious vision was only of killing 300,000 daily.

He devoted his energies to attacking those who appeared abler and better than himself and the most prominent object of his hatred was the party of the Girondins. These were so called because most of them came from the Gironde and they are best described as people who wished that France should be governed by a sane and moderate democracy, such as they wrongly imagined the Roman Republic to have been. They were gentle and clever visionaries who dreamed dreams; they advised, but did not dare to perform; the most famous names which have survived are those of Brisso, Roland and Barbaroux. Madame Roland, who has become of legendary fame, was considered their "soul"; concerning her, shouts Carlyle: "Radiant with enthusiasm are those dark eyes, is that strong Minerva-face, looking dignity and earnest joy; joyfullest she where all are joyful. Reader, mark that queen-like burgher-woman; beautiful, Amazonian-graceful to the eye; more so to the mind. Unconscious of her worth (as all worth is), of her greatness, of her crystal-clearness; genuine, the creature of sincerity and Nature, in an age of artificiality, pollution and cant"—and so forth. But Carlyle was writing prose-poetry, sacrificing truth to effect and it is unwise to take his poetical descriptions as accurate. Recent researches have shown that possibly Manon Roland was not so pure, honest and well-intentioned as Carlyle thought—nor so "crystal-clear." Summed up, the Girondins represented the middle classes and the battle was now set between them and the "unwashed" led by Robespierre, Danton and Marat.

What manner of man, then, was this Marat, physically? Extraordinary! Semi-human from most accounts. Says Carlyle: "O Marat, thou remarkablest horse-leech once in d'Artois' stables, as thy bleared soul looks forth through thy bleared, dull-acrid, wo-stricken face, what seest thou in all this?" Again: "One most squalidest bleared mortal, redolent of soot and horse-drugs." There appears to have been a certain amount of foundation for the lie that Marat had been nothing more than a horse doctor, for once, when he was brevet-surgeon to the bodyguard of the Compte d'Artois he had found that he could not make a living and had been driven to dispense medicines for men and horses; his enemies afterwards said that he had never been anything more than a horse-leech. Let us not deprive our own profession of one of its ornaments. His admirer, Panis, said that while Marat was hiding in the cellars, "he remained for six weeks on one buttock in a dungeon"; immediately therefore he was likened to St. Simeon Stylites, who, outside Antioch, built himself a high column, repared him to the top and stood there bowing and glorifying God for thirty years, until he became covered with sores. Dr. Moore gives the best description of him. "Marat is a little man of a cadaverous complexion and a countenance exceedingly expressive of his disposition; to a painter of massacres Marat's head would be invaluable. Such heads are rare in this country (England), yet they are sometimes to be met with in the Old Bailey." Marat's head was enormous; he was less than five feet high, with shrivelled limbs and yellow face; one eye was higher placed than the other, "so that he looked lop-sided." As for his skin disease, modern writers seem to consider that we should nowadays call it *dermatitis herpetiformis*, though his political friends artlessly thought it was due to the humours generated by excessive patriotism in so small a body attacking his skin and thus should be counted for a virtue. Carlyle hints that it was syphilis, thus following in the easy track of those who attribute to syphilis those things which they cannot understand. But syphilis, even if painful, would not have been relieved by sitting for hours daily in a hot bath.

Mentally he appears to have been a paranoiac, to quote a recent historical diagnosis by Dr. Charles W. Burr, of Philadelphia. Marat suffered for many

years from delusions of persecution, which some people appear to take at their face value; the "New Age Encylopædia" specially remarks on the amount of persecution that he endured—probably all delusional, unless we are to consider the natural efforts of people in self-defence to be persecution. He suffered from tremendous and persistent "ego-mania" and appears to have believed that he had a greater intellect than Voltaire. Marat, whom the mass of mankind regarded with horror, fancied himself a popular physician, whom crowds would have consulted but for the unreasonable and successful hatred of his enemies. Possibly failure at his profession, combined with the unspeakable irritation of his disease, may have embittered his mind and for the last few months of his life there can be little doubt that Marat was insane.

It seems to be certain that he organized, if he did not originate, the frightful September massacres. There were many hundreds of Royalists in the prisons, who were becoming a nuisance. The Revolution was hanging fire and well-meaning enthusiasts began to fear that the dull clod of a populace would not rise to its might to end the aristocracy; so it was decided to abolish these unfortunate prisoners. A tribunal was formed to sit in judgement; outside waited a great crowd of murderers hired for the occasion. The prisoners were led before the tribunal and released into the street, where they were received by the murderers and were duly "released"—from this sorrowful world. The most famous victim was the Princess de Lamballe, Superintendent of the Queen's Household. The judge at her trial was the notorious Hébert, anarchist, atheist and savage, afterwards executed by his friend, Robespierre, when he had served his turn. Madame collapsed with terror and fainted repeatedly during the mockery of a trial, but when Hébert said the usual ironical: "Let Madame be released," she walked to the door. When she saw the murderers with their bloody swords she shrank back and shrieked: *"Fi! horreur!"* They cut her in pieces; but decency forbids that I should say what they did with all the pieces. Carlyle, who here speaks truth, has a dark saying about "obscene horrors with moustachio *grands-lévres,"* which is near enough for anatomists to understand. The murderers then stuck her head on a pike and held her fair curls above them as an oriflame in the name of Liberty. Madame was but one of 1,100 whose insane butchery must be laid to the door of Marat; though some friends of the Bolsheviks endeavour to acquit him, we can only say that if it was not his work, it looks uncommonly like it.

The battle between the Girondins, who were bad fellows, but less bad than their enemies of the Mountain—Robespierre, Danton and Marat—continued; it was a case of *arcades ambo*, which Byron translates "blackguards both," though Virgil, who wrote the line—in the Georgics—probably meant something much coarser. The "Mountain" began to get the upper hand and the Girondins fled for their lives or went to the guillotine. The Revolution was already "devouring its children."

At Caen, in Normandy, there lived a young woman, daughter of a decayed noble family which in happier days had been named d'Armont, now Corday. Her name was Marie Charlotte d'Armont and she is known to history as Charlotte Corday. She had been well educated, had read Rousseau, Voltaire and the encyclopædists, besides being fascinated by a dream of an imaginary State which she had been taught to call the Roman Republic, in which the "tyrannicide" Brutus loomed much larger and more glorious than in reality. Some Girondists fled to Caen to escape the vengeance of Marat; Charlotte, horrified, resolved that the monster should die; she herself was then nearly twenty-five years of age. I have a picture of her which seems to fit in very well with one's preconceived ideas of her character. She was five feet one inch in height, with a well-proportioned figure, and she had a wonderful mass of chestnut hair; her eyes were large, grey and set widely apart; the general expression of her face was thoughtful and earnest. Perhaps it would hardly be respectful to call her an "intense" young lady; but there was a young lady who sometimes used to consult me, who might very well have sat for the portrait; she possessed a type of somewhat—dare I say?—priggish neurosis which I imagine was not unlike the type of character that dwelt within Charlotte Corday—extreme conscientiousness and self-righteousness. Such a face might have been the face of a Christian martyr going to the lions—if any Christian martyrs were ever thrown to the lions, which some doubt. She went silently to Paris, attended only by an aged man-servant and bought a long knife in the Palais Royal; thence she went to Marat's house and tried to procure admission. Simonne—the loyal Simonne—denied her and she returned to her inn. Again she called at the house; Marat heard her pretty voice and ordered Simonne to admit her. It was the evening of July 13, four years all but one day since the storming of the Bastille, and Marat sat in his slipper-bath, pens, ink and paper before him, frightful head peering out of the opening, hot compresses concealing his hair. Charlotte told him that there were several Girondists hiding at Caen and plotting against the Revolution. "Their heads shall fall within a fortnight," croaked Marat. Then, he being thus convicted out of his own mouth, she drew forth from her bosom her long knife and plunged it into his chest between the first and second rib, so that it pierced the aorta. Marat gave one cry and died; Charlotte turned to face the two women who rushed in, but not yet was she to surrender, for she barricaded herself behind some furniture and other movables till the soldiers arrived. To them she gave herself up without trouble.

At her trial she made no denial, but proudly confessed, saying: "Yes, I killed him!" Fouquier-Tinville sneered at her: "You must be well practised at this sort of crime!" She only answered: "The monster! He seems to think I am an assassin!" She thought herself rather the agent of God, sent by Him to rid the world of a loathsome disorder, as Brutus had rid Rome of Julius Cæsar.

In due course she was guillotined and an extraordinary thing happened. A young German, named

Adam Lux, had been present at the trial, standing behind the artist who was painting the very picture of which I have a reproduction—it is said that Charlotte showed no objection to being portrayed—and the young man had been fascinated by the martyresque air of her. He attended the execution, romance and grief weighing him down; then he ran home and wrote a furious onslaught on the leaders of the "Mountain" who had executed her, saying that her death had "sanctified the guillotine" and that it had become "a sacred altar from which every taint had been removed by her innocent blood." He published this broadcast and was naturally at once arrested. The revolutionary tribunal sentenced him to death and he scornfully refused to accept a pardon, saying that he wished to die on the same spot as Charlotte, so they let him have his wish. The incident reminds one of a picture show and it is not remarkable that an American, named Lindsay Orr, has written a sentimental article about it.

The people of Paris went mad after Marat's death; his body, which was said to be decaying with unusual rapidity, was surrounded by a great crowd which worshipped it blasphemously, saying: "O Sacred Heart of Marat!" This worship of Marat, which showed how deeply his teaching had bitten into the hearts of the people, culminated in the Reign of Terror, which began on September 5, 1793, whereby France lost, according to different estimates, between half a million and a million innocent people. Some superior persons seem to think that Marat had little or no influence on the Revolution, but to my mind there can be no doubt that the Terror was largely the result of his preaching of frantic violence and it is a lesson that we ourselves should take to heart, seeing that there are persons in the world to-day who would emulate Marat if they possessed his enormous courage.

I need not narrate the history of the Reign of Terror, which was even worse than the Terror which the Bolsheviks established in Russia. Not even Lenin and Trotsky devised anything so atrocious as the *noyades*—wholesale drownings—in the Loire, or the *mariages republicains* on the banks of that river and it is difficult to believe that the teaching of Marat had nothing to do with that frightful outbreak of bestiality, lust and murder.

The evil that men do, lives after them! There was little good to be buried in Marat's grave, doctor though he was.

HYMENOLEPIS DIMINUTA IN HUMAN HOSTS.[1]

By GLEN H. BURNELL, B.S., M.D.,
Adelaide.

IN the course of several thousand fæcal examinations made under the writer's supervision in connexion with the work of the Australian Hookworm Campaign, three cases were met with which showed infection with the cestode *Hymenolepis diminuta*. All three infections occurred in children, the ages of the patients being thirteen, ten and nine years. The first was met with in Brisbane in May, 1921, and the two others, who were both members of the same family, in Rockhampton in July of the same year.

The occurrence of these three cases in quick succession leads one to suspect that infection with this parasite is more common than has been hitherto believed. In the literature available to the writer, the cases reported in human beings prior to 1916 were limited to twelve, five of these being from America and seven from Europe.(1)

Hymenolepis diminuta was first described in human beings by Weinland, under the name of *Tænia flaropunctata*, from specimens collected by Dr. E. Palmer, of Boston, in 1842. The host was a child, aged nineteen months.(1)

Fantham, Theobald and Stevens(2) give the following information regarding this parasite:

> According to Grassi and Rovelli, the larval stage lives in a small moth (*Asopia farinalis*) as well as in its larva, in an orthopteron (*Anisolabis annulipes*) and in coleoptera (*Acis spinosa* and *Scaurus striatus*). Experimental infections have been successful on rats as well as on human beings. In America other species of insects may be the intermediary hosts.

The same authority, continuing, states that the cysticercus has been found in rat fleas; in *Ceratophyllus fasciatus* by Nicoll and Minchin and in *Xenopsylla cheopis* by Johnston in Australia.

The following description of the adult parasite is found in Fantham, Stephens and Theobald:(3)

> This species measures 20 cm. to 60 cm. in length and up to 3.5 mm. in breadth; there are from 600 to 1,000 segments. The head is very small (0.2 mm. to 0.5 mm.), it is club-shaped and has a rudimentary unarmed rostellum; the neck is short, the mature segments are 3.5 mm. in breadth, 0.66 mm. in length.

It is possible that infections with this parasite have been attributed to the much more common *Hymenolepis nana*, owing to a resemblance between their respective ova. A careful study of the latter, however, will reveal several differences which readily permit of their differentiation. These are as follows:

Hymenolepis diminuta.

(*a*) The ovum has a definite greenish tinge, this being especially marked in the shell.
(*b*) Diameter: 65μ to 70μ.
(*c*) Diameter of onchosphere roughly half that of the ovum.
(*d*) The onchosphere has a small papilla and filaments are absent.
(*e*) Hooklets tend to be in the short axis of the onchosphere.

Hymenolepis nana.

(*a*) The ovum is almost colourless, what colour there is being a delicate pink.
(*b*) Diameter: 40μ to 50μ.
(*c*) Diameter of onchosphere, roughly two-thirds of that of the ovum.
(*d*) Papillæ and filaments well marked.
(*e*) Hooklets tend to be in the long axis of the onchosphere.

In addition, the ova of *Hymenolepis diminuta* are much more uniform in size in any one stool, while those of *Hymenolepis nana* vary considerably in size.

[1] The work on which these observations are based, was done with the support and under the auspices of the Commonwealth of Australia, the State of Queensland and the International Health Board of the Rockefeller Foundation.

In the writer's three cases, the diagnosis was made by finding the ova of *Hymenolepis diminuta* in the stools. As this was known to be a common parasite in rats, the question arose as to whether the ova had been ingested as the result of an accidental infection of the children's food with ova from rat's fæces. This, however, seemed highly improbable, as the ova were far too numerous to be accounted for by such accidental contamination.

In one case, at least, the question was solved by the recovery of the adult parasites from the stools after treatment with oil of male fern. The method of treatment was as follows: The patient, a boy aged thirteen years, was given *extractum filicis liquidum* after twelve hours' fast. The drug was administered in hard gelatine capsules and was followed two hours later by a liberal dose of magnesium sulphate. The stools during the next forty-eight hours were saved in a bucket, washed and examined for the parasite. Under this treatment, many large fragments of worms were passed, but, while some were almost complete, in no case was the head recognized.

In the second case, a similar treatment was given, but no worms were recovered. In this case, however, the parents were unable to induce the child to take the dose of magnesium sulphate.

The stools of the above two cases were re-examined several times during the five weeks following the treatment and in neither case were any ova seen, so that it is possible that both patients were cured. In the third case treatment, first with male fern and later with pelletierine, gave no results and the patient continued to pass the ova. This boy, however, could not swallow the capsules and it is doubtful if he received anything like an efficient dose.

Although the head of the parasite was not obtained, examination of the segments leaves no room for doubt that the parasite is *Hymenolepis diminuta*. The genus *Hymenolepis* has the following characteristics:[4] "Small worms; proglottides always broader than long; three large testes in each proglottid; genital pores unilateral, uterus persistent, sac-like; eggs round or oval with two or three distinct envelopes."

Some of the fragments obtained by the writer were 17.5 cm. long and examination of the proglottides, after staining with picro-carmine, showed the above characteristic features of the genus.

The writer was under the impression that the parasite had not been found infecting human beings in Australia hitherto. There is, however, one specimen from a human source in the possession of Professor T. Harvey Johnston, of Queensland University, who is of the opinion that the parasite has not previously been reported from man in Australia. As far as the writer knows, the diagnosis has not previously been made in Australia from the identification of the ova in the fæces.

Summary.

1. The writer records the occurrence of three cases of infection of children the cestode *Hymenolepis diminuta*.

2. Male fern, in full doses, was used to expel the worms, but with only partial success.

References.

(1) Fantham, Stephens and Theobald: "The Animal Parasites of Man," 1916, page 326.
(2) *Ibid.*, page 327.
(3) *Ibid.*, page 326.
(4) Hegner and Cort: "Diagnosis of Protozoa and Worms Parasitic in Man," 1921, page 59.

MEDICAL TREATMENT OF VISCEROPTOSIS.

By R. A. Parker,
Melbourne.

The medical treatment of visceroptosis does not appear to have received much notice in The Medical Journal of Australia, but the subject is one well worthy of consideration, as a slight displacement of any of the abdominal viscera may give rise to symptoms of rather an obscure character and origin. The consideration of ptosis of any abdominal viscus must not be confined to the organ which appears to be affected, but must cover all the contents of the abdomen.

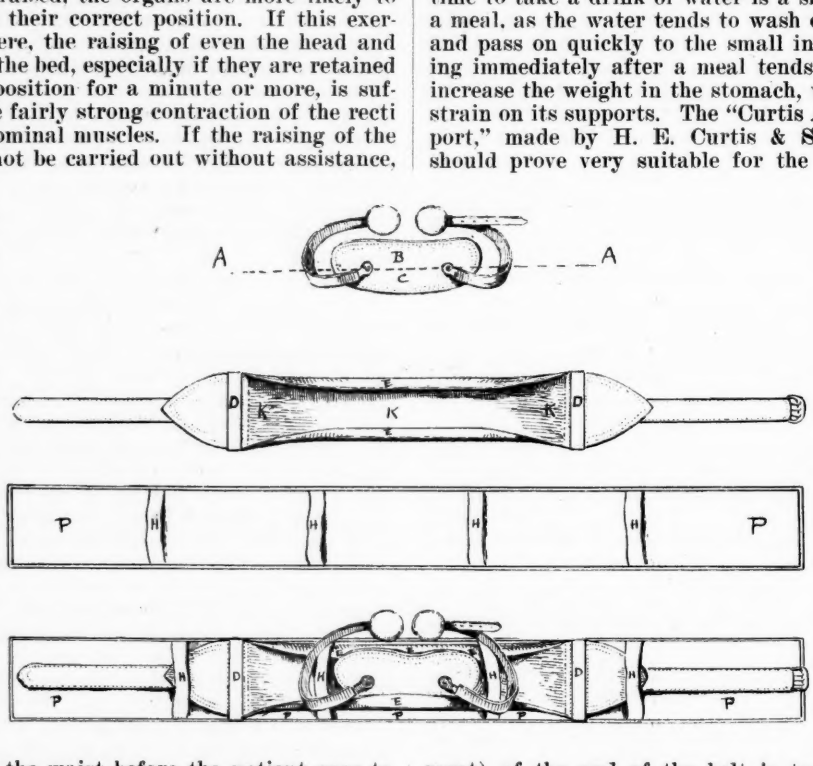
The organ affected follows the course of gravity, owing probably to some predisposing cause, such as the form of the body framework (*e.g.*, narrowness in the lower part of the chest, straightness of the spinal column or a large pelvis), loss of weight causing lowered intra-abdominal pressure, lack of tone in the abdominal ligaments or the muscles of the abdominal wall, combined with some superimposed cause, such as riding on camels, jolting in motor cars, rough riding on disc ploughs or any form of motion of a rough character when the body is in the erect or sitting posture. The displaced organ, in wending its way towards the pelvis, leaves a partially empty space or area of lowered resistance to gravity, which will sooner or later be filled by one of the other viscera of the abdomen, which, in its turn, will have followed the course of gravity. It is, therefore, well to consider medical treatment before resorting to surgical measures for the relief of this condition. What would be the use of fixing the stomach unless the causes are ascertained and remedied, especially if other viscera show a tendency to prolapse, as these in dropping still further may kink around the general peritoneal adhesions which may form as a result of the operation, or even around the adhesions formed at the site of the fixation and still further contribute to the stasis probably already in existence. If it is shown by an X-ray examination that the prolapsed viscera can be replaced, then medical measures should be given a trial. This article is written primarily to show the importance of medical supervision of the patient wearing an abdominal belt.

The belt should be applied by the patient when he is lying on his back, with the pelvis raised, but the shoulders and the feet should be firmly placed on the bed, with the knees in the flexed position. The belt should not be removed until bed is re-entered in the evening. After the belt is applied in the morning and prior to its removal in the evening, exercise of the abdominal muscles in the form of raising the shoulders from the bed, the pelvis and

the legs remaining in a horizontal position, may be carried out regularly, or some form of apparatus fixed to the wall may be used with the patient's back turned to the wall whilst he is pulling on the attached cords by the flexion of the body on the pelvis; reliance should be placed on the pull of the recti and the other muscles of the abdominal wall, with as little movement of the arms as possible. Exercise in bed is better, as the viscera of the abdomen tend to fall into their correct place when the body is in the reclining position and, as the muscles of the abdominal wall must contract before the shoulders are raised, the organs are more likely to be retained in their correct position. If this exercise is too severe, the raising of even the head and the neck from the bed, especially if they are retained in the raised position for a minute or more, is sufficient to cause fairly strong contraction of the recti and other abdominal muscles. If the raising of the shoulders cannot be carried out without assistance, then some support may be obtained by using the elbows placed in close apposition to the body.

When a bath is to be taken, the principle of never removing the belt or support when the body is in the erect posture should be adhered to. This may be carried out by applying a leather belt drawn tightly around the waist before the patient goes to the bathroom; the belt may be removed as soon as the reclining position is assumed in the bath, but must be replaced before the patient rises from the bath. In regard to sea bathing, the leather belt must be applied before leaving the bathing shed for the sea and not removed until the bathing shed is re-entered. If the abdominal viscera are maintained as far as is possible in their approximately correct position, it might be expected that with improving health, the laying on of fat and the better muscular tone due to rest and support, the longitudinal muscle of the stomach extending from the cardiac and pyloric orifices with the aid of the oblique muscle would take up some of the slack, unless a chronic dilatation of the stomach had developed as a result of the ptosis and the various ligaments of the abdominal organs, although consisting largely of peritoneum, might be expected to adapt themselves to the altered conditions by taking up the slack. To aid the longitudinal muscle to take up the slack no meal should be taken after 6 p.m. until breakfast the next morning, for if the stomach is left empty for twelve hours or more in the twenty-four, there is a reasonable prospect that some muscular contraction may take place. Lying on the back, if suitable, during sleep should be carried out and the shoulders should be at no higher level than the buttocks.

The belt is worn continuously apart from the period of rest at night, but the reclining position with the belt applied should be assumed for half an hour after each of the three main meals. The best time to take a drink of water is a short time before a meal, as the water tends to wash out the stomach and pass on quickly to the small intestine. Drinking immediately after a meal tends temporarily to increase the weight in the stomach, with consequent strain on its supports. The "Curtis Abdominal Support," made by H. E. Curtis & Son, of London, should prove very suitable for the Australian climate, as in summer it is cooler to wear than the ordinary surgical belt and is very easily and quickly applied. A plan of this belt may be seen in the advertisements of *The British Medical Journal*. It will be seen in the sketch of the belt there shown that the length (*i.e.*, the vertical measurement) of the pad of the belt is two-thirds of the width (*i.e.*, the horizontal measurement). Dr. Stawell suggested to me that I should wear a belt and Mr. Hartman, of the firm of Ramsay & Company, informed me that the Curtis belt was sometimes ordered by Dr. Stawell. I order a belt of this type, but found that I was unable to wear it without considerable discomfort. It appears that this form of belt must be considerably modified in shape to meet the requirements of individual cases. In my own case, it was found after a number of alterations that a belt that gave me the greatest degree of comfort and support was one in which the length of the pad of the belt was just over one-half of the breadth. In arriving at this conclusion, the following points occurred to me:



(*i.*) It will be noticed that if the body is flexed, the centre of flexion as shown by the creasing of the skin of the abdomen, is located about the level of the umbilicus and therefore the highest level of the pad of the belt must come below the level of the

navel. If measurements are taken from the lower end of the mesosternum to the umbilicus, it will be found on flexing the body to a right angle that the distance between these points is very much reduced. In my own case the measurement is reduced from 20.3 centimetres to 12.7 centimetres (eight inches to five inches) and therefore room must be left above the navel to provide space for adaptation to these altering conditions. If the pad of the belt extends above the navel, then as the umbilicus is roughly the position of the axis of flexion of the body, it is evident with the moving forward of the upper portion of the abdominal wall, the upper portion of the pad of the belt becomes a lever which presses the lower portion of the belt on to the inguinal canal and the insertion of the rectus muscle, thus producing pain or at the very least some discomfort. It may be further realized that in flexion of the body, the forward movement would bring the upper portion of the abdomen into sudden apposition with the fixed metal belt and undue pressure might thus be exerted by the belt on the duodenum, sufficient perhaps to produce by repeated movement an impaired vitality of the mucous membrane, resulting ultimately in ulceration.

(*ii.*) If the pad of the belt is to maintain the stomach in position, it must press firmly into the abdominal wall; to do this a gradual sloping inwards from the pubic symphysis must be allowed for. If a sufficient space be not allowed between the lower margin of the pad of the belt on the one hand and the pubic bone and Poupart's ligament on the other, discomfort will result.

There is nothing to be gained by the use of a belt whose lower margin comes too near to the pubic symphysis, as the urinary bladder requires neither pressure nor support and the pad, if set too low down (*i.e.*, too near the symphysis) has to overcome the powerful recti muscles at their insertion. In my case, I found that the belt gave the best results if the lower edge reached to within about five centimetres of the pubic symphysis, as, when the body was flexed to a right angle, this measurement was reduced to half this distance or less. A belt similar in form to that shown in the accompanying diagram was found to be comfortable and effective by me, but the instrument maker said to me that it looked more like a kidney pad in its finally reduced form. Of course, pelves vary considerably in form and size and a belt must be made to suit individual requirements.

(*iii.*) It will be noticed that if a line (*A* in diagram) be drawn parallel to the umbilical edge of the abdominal pad of the belt midway between this edge and the point of maximum convexity of the pubic edge of the pad of the belt, it will pass through the points of insertion of the steel springs which extend backwards to their connexion with the lumbar pad in the rear. The area (*C*) below this parallel line is much smaller than that (*B*) above the line; thus greater pressure is exerted by the lower portion of the pad on the abdominal wall when the belt is applied and thereby upward pressure is obtained.

If the shape of the belt, which must vary considerably in differently formed pelves, is somewhat similar in form above and below the parallel line, the points of insertion of the springs must be placed at a lower level in order to obtain the necessary upward pressure of the pad.

A more satisfactory result will be obtained if the sheet of brass which forms the inner framework of the abdominal pad, is divided vertically into two equal portions placed laterally, so as to form a kind of hinge where they come into apposition with each other. Greater comfort in the bodily movements will thus be provided. For cleanliness and comfort a linen handkerchief arranged in four folds should be worn underneath the abdominal belt. In the cool weather, say from the end of March to the end of October, further support may be applied to the abdominal wall with advantage in the form of a simple belt which may be made at home. A piece of elastic belting (*K*) preferably of silk, sixteen centimetres in width and of sufficient length to extend across the abdomen to points about three centimetres behind the anterior superior iliac spines of each side is supported at each end by an aluminium busk (*D*) or the support is stitched into linen or linen finished calico; this linen has a buckle fastening in the rear, thus forming a belt which is applied under the metal belt.

This elastic belt folds round the pubic edge of the metal belt for about 1.25 centimetres when it is applied and is thus prevented from slipping upwards on the abdominal wall by this lower elastic fold (*E*). The upper edge of the elastic belt folds upon itself (*E*) to the extent of about 2.5 centimetres, presenting a firm, rounded and comfortable surface which adapts itself readily to any movement of the body, but it does not overlap the metal belt.

The advantage of this elastic belt, which might be called a supporting belt, is that it presents a smooth, continuous and freely movable surface over the muscles of the abdominal wall and is therefore the nearest imitation to Nature's supporting abdominal wall. As this supporting belt is pressed into the abdominal wall on the one hand by the metal belt and on the other hand is drawn into close proximation with the bony pelvis, it occupies a position somewhat similar to that of the abdominal muscles. The use of busks or supports at the sides gives a good deal of lateral support to the abdominal wall. When the supporting belt is worn, the pressure of the metal belt may be slightly reduced by the adjustment of the springs.

For the purpose of cleanliness and comfort, a piece of linen (*P*) with a few tapes (*H*) reaching from its upper and lower edges should be worn next to the skin. The supporting belt is passed between the linen and the tapes and is thus applied to the abdomen over the linen. When these are applied, the metal belt is put on over them.

To show the importance of a suitable belt being worn, on one occasion when I was at the instrument makers, I noticed an enormous abdominal belt of the Curtis pattern, which, when it was in use, must have reached well up into the epigastrium of the patient. I remarked that the patient would never wear it and was informed that it was made to the order of a doctor. About three months later, when I called at the instrument makers, it was no surprise to me to see this large metal belt still lying in the

shop, as the patient had found it too uncomfortable to wear, no doubt for the reasons explained above.

All wearers of metal belts should know how to reduce or increase the pressure of the steel springs. This is, of course, easily effected, but must be carried out without any jerking movements or the springs will be broken.

The tension of the springs is altered by placing the two thumbs and the two forefingers respectively in close apposition, then bending should be carried out without any jerking movements between the digits of each hand.

The triangle in the lower abdominal wall, formed at its base by a line joining the two anterior superior iliac spines (the umbilical edge of the pad of the belt is placed about 2.5 cm. above this level when the belt is worn) and at its two sides by Poupart's ligaments, may be pressed well backwards, if a belt of the type given above be worn, so that a convexity of this lower triangular area may be practically converted into a concavity. The movable abdominal viscera must then naturally move to the area of less resistance or of lower pressure in the upper portion of the abdominal cavity provided there are no adhesions.

During the time I was in medical practice, when I ordered an abdominal belt, it appeared to me that there my duty ended, but, after personal experience, I am of opinion that the points referred to in this article may be worth some little consideration when an abdominal belt is ordered.

POST-ANÆSTHETIC VOMITING.

BY VAL. MACDONALD, L.R.C.P., L.R.C.S. (ED.),
Melbourne.

POST-ANÆSTHETIC vomiting is an all too constant source of distress, worry and anxiety to patient, surgeon and nursing staff. At times the vomiting is so persistent as to be an absolute source of danger to the already enfeebled and shocked patient and it persists in spite of many drugs. During the war we found it at times a great worry with our facial wound cases at Sidcup. On one occasion there I was called as orderly medical officer to a patient who had been vomiting for thirty-eight hours in spite of all the usual remedies. By a happy inspiration it occurred to me to try adrenalin chloride; a single dose sufficed to check the condition instantly. Within half an hour the patient was in a refreshing sleep. I used the same treatment in many subsequent cases and only once had I to repeat a dose.

I have just watched its success once more in a patient who dreaded anæsthesia because on each of five previous occasions it had been followed by three days of persistent vomiting. She started off in her usual fashion as soon as possible after the operation was over. We first tried the usual remedies, with the usual want of success. One dose of adrenalin chloride checked the vomiting sufficiently to enable her to be removed from my surgery to her home, when a subsequent dose completely settled any further tendency to vomit.

I give from 0.3 to 0.5 cubic centimetres (5 to 8 minims) of Parke, Davis & Company's 1 in 1,000 solution of adrenalin chloride in from 3.6 to 5.2 cubic centimetres (one to one and a half drachms) of water and always by the mouth. On one occasion I tried the effect of administration by hypodermic injection, but with no apparent benefit, while a subsequent dose by the mouth had the desired action. I think it is of importance to allow the stomach to be emptied of swallowed blood and so on before administration. This gives the drug a fair chance to act.

The effect is as dramatic as it is gratifying and I feel it my duty to report a remedy which has proved so successful.

Reports of Cases.

A CASE OF RHINOLITH PRESENTING UNUSUAL FEATURES.

BY RICHARD FRANCIS, M.B., CH.M.,
Honorary Assistant Surgeon, Ear, Nose and Throat Department, St. Vincent's Hospital, Sydney.

H.C.H., male, *ætatis* 62 years, carpenter, married, was referred to me for examination of his nose and throat on November 21, 1921, by Dr. Falkner J. Blaxland. The patient's only complaint was of failing sight for the last twelve months. Dr. Blaxland had diagnosed chronic glaucoma in each eye, but before operating had recommended examination of the nose and throat, as he had noticed a bad odour coming from the patient's nose.

The patient gave me a history of "very occasional colds," during which attacks he had noticed that the nasal discharge was at times thick and yellow and had a bad smell. He was also "inclined to be deaf with a cold." The duration of a cold was never prolonged and all symptoms immediately subsided. There was no history of nasal obstruction, headaches nor naso-pharyngeal discharge. There was no loss of smell nor taste. No throat symptoms were present, or were there any ear symptoms, except the impairment of hearing during a cold.

The family history was good. There had been no previous illnesses. The patient denied a venereal infection.

The patient was a well preserved man of 62, active and able to carry on his trade in so far as his failing sight would permit.

During the examination of the anterior nares on the right side some turgescence of turbinates was observed. No other abnormality was noted. On the left side a large mass of stony hardness was present, lying in the middle meatus and overhanging the inferior turbinate body, which was partially atrophied. This mass seemed firmly fixed and was covered by a foul smelling mucoid débris. It was found on palpation that the mass extended continuously in an antero-posterior direction through the whole nasal cavity, but there was a definite airway between it and the septum; a probe could be passed between it and the lateral nasal wall with difficulty.

Transillumination showed impairment of both sides, the left being more affected than the right.

The mass ended in a large lobulated end hanging into the naso-pharynx. The naso-pharynx was otherwise apparently normal.

The *membranæ tympani* of both ears showed a generalized thickening. Nothing else abnormal was noted in the ears.

The patient had an artificial denture of the upper jaw. The remaining teeth were very carious and there were some granulations on the posterior pharyngeal wall. No other abnormal condition was noted.

The larynx appeared to be unaffected.

The patient was instructed to have the carious teeth removed. He was sent to St. Vincent's Hospital for X-ray

examination by Dr. Edwards, who reported that a rhinolith was present in the left nasal cavity and that there was dulness of both antra, probably due to a bony change.

On November 28, 1921, at St. Vincent's Hospital the maxillary antra were punctured and washed out under cocaine anæsthesia. They were both found to be clear. The rhinolith was then removed. This was done by breaking it into pieces and removing them separately, the large posterior end being pushed posteriorly and expectorated by the patient, as it could not be delivered through the anterior nares. The hæmorrhage was considerable, but was controlled by packing with gauze. The gauze was removed twenty-four hours later, when there was again some oozing. Convalescence was uneventful. The patient used an alkaline nasal wash for three weeks. Both sides then appeared to be equal on transillumination and slightly impaired.

The rhinolith measured, when pieced together, approximately 6.25 centimetres (two and a half inches) in length and 2.5 centimetres (one inch) in width and weighed approximately 12.8 grammes (215 grains).

Portion of the rhinolith was submitted to Dr. Utz for microscopical examination. His report is as follows:

"The specimen submitted for examination was irregular in shape, more or less resembling in appearance a large broad bean. It was from 3.75 centimetres to 5 centimetres (one and a half to two inches) long and about 2.5 centimetres (one inch) wide. It was of stony hardness and did not disintegrate or fracture on being subjected to mild force with a hammer.

"This calcareous mass was decalcified; the remaining tissue was about one-half the size of the original material and was of a fibrinous nature. Sections showed that this tissue consisted of a large amount of fibrin intermingled with blood clot. Beyond numerous red blood cells seen on section there were no other cells present. The examination, therefore, would suggest that the rhinolith in question proceeded from a blood clot in the nasal region which had become calcified."

After receiving this report, I asked the patient whether he had suffered from epistaxis. He remembered that in childhood "his nose used to bleed," but not since.

The rhinolith is considerably larger than any previously reported. Text-book references are scanty. De Havilland Hall and Herbert Tilley give the average weight as four to five grammes (70 to 90 grains). They state that the usual site is the inferior meatus, that the usual nucleus is a foreign body and that their occurrence is more common in females than in males.

This rhinolith had evidently been *in situ* for a long period and it is remarkable that it had not caused any symptoms to the patient.

I am greatly indebted to Dr. Blaxland for letting me examine the patient and to Dr. Edwards and Dr. Utz for their examination and reports.

Reviews.

CARDIAC SURGERY.

No man who tries to keep abreast of the ever-widening horizon of professional progress, can neglect to read the current journals of his profession. But there is another printed avenue to recent knowledge which may be equally valuable—the monograph. If written by a master, it may be taken to represent all that is known and of permanent value concerning the subject discussed. The Bradshaw lecture on "The Surgery of the Heart" is among the very best of its kind.[1] It is the work of a man of wide experience. Its perusal leaves the reader with a feeling of having gained clear, practical knowledge. It is charmingly written, not a common circumstance in medical literature. It is suggestive and full of delightful quotations from the Iliad which give a fresh zest to those who love that best of all epics. A short review cannot do justice to the value of this essay. The contrast between what was possible in the surgery of the heart a generation ago and what is done with success to-day emphasizes more than most contrasts of time and work accomplished the enormous strides that the surgery of internal organs has taken. The exigencies of war have helped in no small way by material and necessity in causing these extensions of the art and craft of surgery. The monograph is a full and good guide to all who may be concerned with cardiac surgery. The following procedures are described: *Paracentesis pericardii*, paracentesis of the right ventricle and auricle, operation for air embolism of the heart, cardiac stimulation for arrest of movement of the heart, cardiolysis and cardiorrhaphy. The various methods of exposure of the parts are well set forth and wounds of the pleura and lung are also considered.

Sir Charles Ballance points out that infection is the crucial factor in heart wounds. He dislikes the chondroplastic flap of Kocher and asks: "What does it matter if there is a gap left in the chest wall due to the removal of the fourth, fifth and sixth cartilages?" Some surgeons hold the opinion that it does matter a great deal. He also says that a chondro-plastic flap means a dead space left under the flap which might determine the inset of sepsis. This view is one which we cannot endorse. It is, however, vain to pick apparent spots in the sun, when there is not space to dwell on the excellence of the whole. Sir Charles Ballance's performance is one of the ablest collections of helpful facts concerning the surgery of the heart and will be read with pleasure and profit by all who interest themselves in this subject.

[1] "The Bradshaw Lecture on the Surgery of the Heart," Delivered before the Royal College of Surgeons, December 11, 1919, by Sir Charles A. Ballance, F.R.C.S.; 1920. London: MacMillan & Company, Limited; Demy 8vo., pp. 154, with 48 illustrations. Price: 10s. 6d. net.

Analytical Department.

ELLIOTT'S ETHER.

THE safety of ether anæsthesia necessarily depends primarily on the freedom of the ether from certain impurities. Recent investigations have revealed the astounding fact that chemically pure ether is devoid of anæsthetic properties and that the pharmacological action of ether is dependent on the presence of certain hitherto unidentified ketones. On the other hand, accidents arising in the course of ether anæsthesia given by an experienced practitioner by the open method are often due to the presence in the ether of very small quantities of impurities of varying kinds. Unless special precautions are taken to exclude a particular impurity, even the most carefully prepared ether may at times contain small traces. Consequently, a chemical analysis of anæsthetic ether is of little or no value unless carried out in an exhaustive manner for every batch manufactured. Under these circumstances THE MEDICAL JOURNAL OF AUSTRALIA has not included in its analytical programme the chemical analysis of ether manufactured in Australia.

A special inspector visited the works of Elliott Brothers, Limited, in Balmain, New South Wales, for the purpose of inspecting the preparation of the anæsthetic ether of this firm. The process is carried out in an isolated building designed to minimize the risk of fire and to permit of the rapid removal of ether vapour by currents of air. The building opens on to a yard the surface of which is treated to lessen the amount of dust.

The ether is prepared from pure sulphuric acid made by Elliott Brothers, Limited, from crude sulphuric acid of their own manufacture and from selected spirit made by the Colonial Sugar Refining Company, Limited. Both the acid and the alcohol are subjected to tests before use. The retorts are heated in a bath of albolene, which is raised to a suitable temperature by an electric resistance immersed in it. The albolene is circulated by a pump. The ether is purified by appropriate treatment and distilled from a rectifier. The product of the rectifier is collected in successive batches from which samples are taken for analysis. The whole apparatus is arranged so as to diminish the likelihood of any contamination of the ether. The apparatus is kept in a high state of cleanliness.

The ether of each batch is kept separate and is bottled into new bottles. These bottles are received direct from Australian glass manufacturers. They are then thoroughly

washed in a specially fitted room. After the washing, they are rinsed with tap water and then with distilled water. Finally they are rinsed with ether. New corks are used to close the bottles.

Each batch of bottles is kept until the results of the analysis are available. The samples taken from each batch are sent to the laboratory, where they are tested as to purity and quality. Our inspector examined the note-book recording the results of the tests carried out day by day. The entries showed that a careful scrutiny is exercised over the whole process of manufacture.

The result of the inspection must be regarded as satisfactory. At the same time, it should be understood that in the absence of a continuous series of analyses and testings for all the known impurities of anæsthetic ether, THE MEDICAL JOURNAL OF AUSTRALIA cannot express an opinion concerning the physiological reliability of this or any other brand of ether.

ELLIOTT BROTHERS'S GALENICALS.

THE new laboratories at Balmain, in which pharmaceutical preparations are made, were also inspected. These laboratories are situated in brick buildings of three stories, well illuminated by numerous windows and adequately ventilated. Arrangements have been made to reinforce the natural ventilation when additional air currents are required to remove an excess of water vapour. The floors are of cement, suitably sloped to a system of open drainage channels. The apparatus was found to be kept scrupulously clean. It was evident to our inspector that a high degree of cleanliness is demanded from the employees. Although splashing and leakage are likely to occur, no signs were seen of spilled liquids. The laboratories have a garden adjoining, with turf on one side and well paved yards on the other side. Freedom from dust is assured in the immediate neighbourhood of the laboratories.

The galenicals are made in bulk and each batch is labelled with its name and a number. These batches are sent to the store at O'Connell Street, Sydney. Here a record is kept of each batch and its quantity. A sample is taken from each batch and the samples are subjected to appropriate tests. The remainder of the sample is kept as a control. If the tests prove satisfactory, the batch is distributed in bottles of standard sizes. A note is made of the number of bottles and of the measure of the batch. In this way a check is kept on the total quantity of each galenical preparation. The labelling is carried out at once. In this manner any mistake in respect to the nature of a preparation is greatly lessened. Further, as orders are accepted only for quantities contained in the standard sized bottles, no mistake in putting up the preparation demanded is possible. This system greatly lessens the probability of error in supplying drugs.

In the chemical laboratory books are kept containing records of the results of the analyses of all the preparations made during recent years. These books were examined by our inspector. A high standard of uniformity in respect of the alkaloid content of the important pharmaceutical preparations was evident. The preparations are made to conform with the tests set out in the British Pharmacopœia and the analytical control is directed to the establishment of criteria in accord with these standards.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University of Sydney was held on February 6, 1922.

The degree of Master of Surgery (Ch.M.) was conferred upon MESSRS. D. A. CAHALAN, F. W. D. COLLIER and D. S. MACKENZIE *in absentia*.

The following appointments were made:

DR. JOHN MORTON as Acting Lecturer in Clinical Surgery at the Royal Prince Alfred Hospital during 1922.

DR. P. A. ASH and MR. DONALD SMITH as Lecturers in Surgical Dentistry.

DR. A. W. HOLMES À COURT as Medical Tutor and DR. L. W. DUNLOP as Tutor in Anæsthetics at Sydney Hospital.

THE HONOURABLE MR. JUSTICE STREET and DR. G. H. ABBOTT were re-appointed representatives of the Senate on the Women's College Council for two years.

DR. CHARLES MACLAURIN was appointed to represent the University at the Seventh Centenary of the University of Padua.

The following gentlemen were appointed examiners in the forthcoming final degree examination of the Faculty of Medicine:

Medicine: PROFESSOR A. E. MILLS, DR. CECIL PURSER.

Surgery: PROFESSOR F. P. SANDES, SIR HERBERT MAITLAND.

Obstetrics: DR. R. L. DAVIES, DR. S. H. MACCULLOCH.

Gynæcology: DR. FOURNESS BARRINGTON, DR. G. ARMSTRONG.

Clinical Medicine: DR. G. E. RENNIE, DR. J. MACDONALD GILL, DR. H. H. MARSHALL, DR. C. B. BLACKBURN, DR. H. J. RITCHIE, DR. E. W. FAIRFAX.

Clinical Surgery: DR. R. GORDON CRAIG, DR. C. E. CORLETTE, DR. A. J. ASPINALL, DR. J. MORTON, DR. H. S. STACY, DR. G. H. ABBOTT.

Therapeutics and Materia Medica: DR. A. W. HOLMES À COURT.

Public Health.

AMENDMENT OF NAVIGATION (HEALTH) REGULATIONS.

AN important amendment of the Navigation (Health) Regulations, 1921 (Statutory Rules, 1921, No. 199), has been made under the *Navigation Act, 1912-1920*. The amendment came into operation on and from February 1, 1922. The Regulations are amended by adding at the end thereof the following regulations:

3. Where the services of a Medical Inspector of Seamen are required outside ordinary official hours, or on any Sunday or holiday, the applicant therefor shall pay, in addition to the fee prescribed in the preceding regulation, an overtime charge as follows:

On any Customs working day, before 10 a.m. or after 4 p.m., 10s. 6d..

On any Sunday or holiday, £1 1s..

4. The owner or master of every

(*a*) foreign-going ship or

(*b*) Australian-trade ship on a voyage between consecutive ports of call which exceeds 600 nautical miles,

having one hundred persons or upwards on board, shall cause to be carried, as part of her complement, a duly qualified medical practitioner.

5. (1) The owner or master of every

(*a*) foreign-going ship or

(*b*) Australian-trade ship on a voyage between consecutive ports of call which exceeds 600 nautical miles,

having more than ten and less than one hundred persons on board and not carrying a duly qualified medical practitioner as part of her complement, shall cause to be carried, as part of her complement, a person certified by a medical inspector or by an approved authority as qualified to render "first aid."

(2) For the purposes of this regulation the following shall be deemed to be approved authorities, namely:

(*a*) St. John's Ambulance Association,
(*b*) St. Andrew's Ambulance Association,
(*c*) St. Patrick's Ambulance Association,
(*d*) British Red Cross Society,
(*e*) London County Council,
(*f*) Glanmorgan County Council,
(*g*) Leith Technical College,
(*h*) Any other body approved in writing by the Director of Navigation and
(*i*) A Medical Officer of one of His Majesty's ships.

The Medical Journal of Australia

SATURDAY, MARCH 4, 1922.

The Dangers of Blood Transfusion.

In our issue of last week we published a thoughtful and interesting article by Dr. A. H. Tebbutt on the distribution of iso-agglutinins in the blood of infants and adults and of individuals of European and of Australian aboriginal descent. Dr. Tebbutt has developed the modern conceptions of the mechanism of agglutination of blood corpuscles and has adduced convincing evidence in support of von Dungern and Hirschfeld's doctrine that the elements concerned are inherited in accordance with the Mendelian principles. To those who have studied the subject of the agglutinins from books and who have not had the advantage of watching the phenomena in the test tube and under the microscope, this description may be difficult to follow. The causes of incompatibility of blood of two persons becomes still more complicated when it is remembered that the presence of agglutinins is not the only determining factor. It is an accurate index of the danger or safety of introducing the blood of one person into the blood vessels of another. Iso-hæmolysins have not been recognized in the blood of any person in the absence of iso-agglutinins, although iso-agglutinins are frequently present in the absence of iso-hæmolysins. It may be assumed that the effect of the clumping of the blood cells of the recipient by the serum of the donor's blood is less liable to be disastrous than the effect of the solution of these corpuscles by the serum introduced. It is not excluded that other phenomena may be involved in transfusion. Because only two definite biological manifestations are recognized, it does not follow that other, hitherto undiscovered, processes are not at work. From a practical point of view, it is now generally accepted that it is preferable for the donor's blood to belong to the same group as does the blood of the recipient. Furthermore, it is almost as essential to test the compatibility of the cells of an infant's blood and the serum of the donor's blood before the latter is employed for transfusion, as it is in the case of adults. Dr. Basil B. Jones has recently shown that the blood of new-born infants could be identified according to one or other of the four groups. A series of specimens from 197 infants was tested and the group to which the specimens belonged was determined in 78.8% by the reaction of the cells to serum of known groups and of the infant's serum to cells of known groups. Dr. Jones is able to give reasonable evidence in favour of the assumption that the cells of the blood of new-born infants are provided with their full complement of receptors. He has further demonstrated the presence of iso-agglutinins in the blood of a seven months' fœtus.

In order to understand the bio-chemical mechanism it is advisable to adopt the schematic devices introduced by Ehrlich for the elucidation of the process of hæmolysis. The hypothesis may be explained in a simple manner as follows: The constituents of a cell are endowed with chemical side-chains which are capable of anchoring or joining up with other chemical substances not usually present in the cell.

Nutriment is supposed to be introduced into the cell by attaching itself chemically to a definite molecule of one or more of the cell constituents. In the case of hæmolysis a peculiar form of chemical substance has to be present or to be formed in the serum which possesses the double attribute of anchoring itself to one of the side-chains of a cell constituent, spoken of in the language of Ehrlich as a receptor, and simultaneously absorbing the normally occurring ferment of serum, spoken of as complement or alexin. This peculiar substance is said to be an amboceptor, because of the capability manifested of a double chemical action. The hæmolytic action is prevented when the complement is absorbed by some other substance which has no affinity for any side-chain of the constituents of the blood corpuscle, or when the amboceptor is changed in such a manner that it loses its power of absorbing complement.

In the case of blood cell agglutination, it is assumed that two forms of receptors may be

present. Not every blood corpuscles possesses such receptors. Some have one and not the second; some have both; some have none. It will thus be seen that there are four possible types of cells from the point of view of the agglutinin receptors. The blood of Group I. of Jansky's classification contains corpuscles without any receptors. The serum of this blood is supposed to contain amboceptors which correspond to both forms of receptors. The blood of Group IV. has cells with both types of receptors, but its serum has no agglutinin amboceptor. Blood of Group II. has receptors of one kind and amboceptors corresponding to the other type of receptor; blood of Group III. has cell receptors of the other kind and only amboceptors corresponding to the type of receptor present in the cells of Group II. blood. It will be noted that the blood of any one individual only contains part of the ingredients necessary for the reaction. By mixing blood of Group IV. with the serum belonging to any other group, agglutination will occur in virtue of the attachment of the amboceptor or in the case of the serum of Group I., amboceptors to the corresponding receptor or receptors. This hypothesis has been found to explain every combination of blood yet encountered.

Moreover, Dr. Tebbutt has been able to show that in every instance he could identify the types of receptors and the forms of agglutinins as being in correspondence with the receptors and agglutinins present in the blood of the parents. Two parents whose blood belongs to Group I. cannot pass on to their children blood corpuscles belonging to any of the three other groups, because their blood does not contain any receptors. When the dominant qualities of the blood of the parents are mixed, the distribution of each of these qualities will be found to appear in approximately regular frequency in the blood of the children. The mother's blood may be incompatible with the blood of her child, but the latter cannot manifest a dominant or recessive quality which is not manifested in the blood of either of its parents.

Dr. Basil B. Jones has demonstrated that iso-hæmolysins are less frequently recognized in the blood of new-born infants than in the blood of adults. He has further demonstrated in his researches that in both infants and adults no iso-hæmolysins can exist if the blood belongs to Group IV.. He is inclined to the belief, supported by presumptive evidence, that in the presence of an excess of red blood corpuscles anti-hæmolysin frequently inhibits the reaction. In other words, the body provided a certain amount of protection against the dissolution of the blood cells of a recipient when another person's blood is introduced. From the studies of iso-hæmolysis occurring in the blood of known groups, some information has been gained concerning the mechanism of the process. This evidence confirms the view held that in transfusion of blood the "universal donor" should not be used, if it is possible to obtain a person whose blood belongs to the same group as does that of the recipient.

THE EXAMINATION CRAZE.

The examination has been introduced into the education system as a ready means of determining the degree of knowledge possessed by a candidate. Originally these tests were limited to those who sought admission to official positions. In almost every country certain bodies or committees were authorized by government to apply the test to the knowledge of candidates seeking admission to the liberal professions and to some other callings. In the majority of instances the examining body was the university. Competitive examinations were introduced for the purpose of allotting a limited number of positions to the corresponding number of individuals out of an unlimited number of candidates. The expedient of requiring students to write answers to a series of printed questions in a specified time extended as the scope of science and philology became enlarged. Instead of a single test before graduation or qualification, progress examinations were instituted. Schools adopted this means of estimating the state of knowledge of scholars. Prizes were given to the boys or girls who exhibited an unusual ability to reply to questions either in a written or in a spoken examination. The system gradually insinuated itself into the education system so firmly that the main object of education became tempered by the need to prepare for these recurring stock-takings. At school and in the univer-

sity the system has grown into a craze. The young are required to prepare themselves for a long series of examination, not for the acquisition of knowledge nor for the sharpening of the spirit of inquiry and criticism. The school boy or girl is being trained to-day to pass examinations by a feverish but superficial study of a particular subject. Skill is acquired in the display of intelligence; the crammed knowledge does not and cannot find a permanent hold in the mind of the examinee. Moreover, the most useful factor in school education, namely, the learning of how to learn, is lost. Children learn only how to face an examination paper and an examiner.

The same applies to a great extent to our universities. An artificial value is placed on the so-called brilliant student, who in reality has misused his or her intellectual gifts in the process of cramming. The result of an examination cannot be taken as the measure of intellectual ability and of acquired knowledge. The element of chance enters largely, because, unless the teachers indicate openly or covertly the questions to be asked, the result may depend on the recent reading of the candidate. Many men whose careers betoken unusual intellectuality, have disdained in their youth to work directly for an examination and have in consequence failed to impress their examiners with their knowledge of the subjects on which they were being examined. Other men of very moderate mental equipment have gained scholarships and honours on the slender foundation of examination ability. This vexed question has exercised the minds of the education authorities the world over for many years. It has been held that the best test is the opinion formed gradually by teachers of the intelligence of their students. This method necessitates individual teaching, a matter difficult of attainment in these days of overcrowding, and it may be vitiated by a personal bias in favour or to the detriment of a given student.

Our medical schools are at the threshold of a revolution. Many of the old methods have outlived their usefulness. The increasing number of subjects to be mastered, the ever-changing dogma, the entire alteration of the outlook of the function of the medical practitioner in his relations to the public have indicated within recent times that the reform is due. The reactionary spirit of many of the leaders of medical education will not avail to postpone the change for long. When the systematic lecture disappears, when the medical student is trained as a scientist and is required to study the fundamental sciences throughout the course in their adaptation to the healing art, when the profession realizes that its chief function is to prevent disease in the mass and that the safeguarding or cure of the individual is of relatively small importance, men will come to realize that the examination is an institution which belongs to a past age. It had its uses. It has been abused and it must be replaced by something better. The old apprenticeship was a better system, for it guaranteed to the student individual teaching and repeated correction until skill and knowledge were acquired. The revival of this system, added to the beneficent practice of working in full view of competent critics in well-instituted public hospitals, should constitute a more satisfactory method of excluding from the rolls of registered medical practitioners those who should not be allowed to accept the responsibility of the care of human lives.

THE ÆTIOLOGY OF RICKETS.

At the Annual Meeting of the British Medical Association at Cambridge in 1920, Professor F. Gowland Hopkins opened a discussion on the significance of vitamins in the production of disease. He and several of the subsequent speakers dealt with the question of the causation of rickets. In the course of his remarks he referred to the work of Hess and Unger, who claimed to have proved by clinical experiment that deficiency of the fat-soluble accessory food factor has little or nothing to do with the production of rickets. Professor Hopkins indicated the weaknesses of the evidence included in this work and summed up the position at that time with the words: "That more than one factor is concerned in the causation of rickets seems sure." Sir James Barr sought to talk the word and the idea of a vitamin out of our dictionary. He endeavoured to argue on the conceptions of scurvy, beri-beri and rickets of forty years ago. Modern knowledge, the facts definitely demonstrated both in the laboratory and in the clinic within the last ten years cannot be brushed aside by a few remarks on side issues. No other speaker supported Sir James in his reactionary views. The subject was left in a somewhat unsatisfactory state, with the conflicting schools claiming half a dozen separable ætiological agents of rickets.

Findlay and Paton had just endeavoured to establish a hypothesis that want of exercise was the most

important factor in the production of the disease. Eric Pritchard had sought to explain it on the assumption that the available base, calcium, was withheld from developing bone because it was required to neutralize acid products of incomplete oxidation. The adherents of the acidosis hypothesis fondly postulated metabolic defects and intestinal toxins, which would suffice to lead to the changes in bone peculiar to rickets. Quite recently Dr. Amy Hodgson[1] has published an unconvincing article in which she falls into the same errors as so many other contributors to this difficult subject have done, of ignoring evidence that is difficult to interpret and of basing an argument on an average obtained from a small series of chemical analyses with an extraordinarily wide range. The amount of information concerning the development of rickets is enormous, but there is still more to be learned. It is therefore necessary at the present time to postpone all definite conclusions. A systematic consideration of all the facts is essential for a proper understanding of the subject. Perhaps it may be possible to avoid confusion by the exercise of a little caution in regard to the fat-soluble vitamin. It is usually assumed that this is a chemical entity and that vitamin is a ponderable substance, because the effects of the exhibition of foods said to be rich in it are not manifest unless relatively large quantities of the foods are given. It is not improbable that vitamins, like enzymes, are not substances at all, but are merely physical characters of food constituents. It is known that complement of blood serum is so curious in its behaviour that the only conceivable explanation is that it represents a peculiar molecular arrangement of a side-chain of globulin. If fat-soluble vitamin were a manifestation of a special molecular arrangement of a vegetable protein, many of the difficulties that now present themselves in connexion with the so-called deficiency diseases would disappear.

Dr. Edward Mellanby has recently published a full record of his investigations and has argued on the available data in a singularly clear and interesting manner.[2] He has shown how he proceeded step by step in the early work in building up a diet which produced rickets within a short time in every puppy to which it was given. The rhachitic condition was determined by skiagraphic appearances, by chemical analysis and by histological examination. He reproduces some of the skiagrams, photo-micrographs and photographs of external appearance. There can be no question as to the genuineness of the rickets. A considerable series of experiments was undertaken to ascertain the effect of oils and fats in preventing the development of rickets in puppies fed on the rickets-producing diet. Cod liver oil, suet and butter were found to promote the calcification of bone and to prevent rickets. This power was diminished when the butter was heated and oxidized for four hours, as was first shown by Professor Gowland Hopkins. On the other hand, cod liver oil similarly heated and oxidized does not lose its power of preventing the development of the disease. Dr. Mellanby compares the distribution and qualities of the so-called anti-rhachitic vitamin and the fat-soluble A vitamin which is concerned with growth. He is able to adduce a mass of evidence of similarity or presumptive identity. In rats fed on diet deficient in the fat-soluble food factor, the arrest in growth takes place after a considerable interval only in young animals. Older rats appear to become independent of the supply of this vitamin. The same holds good in regard to puppies and the development of rickets.

In the next place, Dr. Mellanby shows that puppies do not become rhachitic when given lean meat in addition to the disease-producing diet, especially if they are allowed their freedom. He suggests that a slight vitamin effect may come into play in virtue of the contained fat, but that the beneficial action of the meat on the general health of the animal is probably a more potent factor in checking the development of the disease. The addition of considerable quantities of bread and carbo-hydrates to the diet had the effect of increasing the severity of the rickets. The general condition of the puppies was harmed by this addition to the diet; they became lethargic and refused to eat and they exhibited no desire to take exercise.

From some experiments with milk and preparations containing casein it would seem that the proper proportion of protein and calcium in the milk peculiar to the species is a very important factor in correct milk feeding. Very little influence one way or the other was exercised on puppies who received casein containing calcium, while when the addition to the diet of acid-caseinogen containing little calcium was made, extreme rickets was produced. Further experiments showed that a deficiency of calcium is an important factor in determining the severity of the rickets, although in itself it is not a cause of the disease.

A carefully-planned series of experiments was carried out with a view to determine the effect of exercise or confinement on the development of rickets. Rhachitic puppies kept in close confinement can be cured of rickets by the addition of cod liver oil and other substances containing the anti-rhachitic vitamin. Rickets undoubtedly developes more rapidly when puppies are fed on the appropriate diet and are kept in confinement. Dr. Mellanby points out, however, that the possibility of exercise depends largely on the quality of the diet.

In summing up all his data, Dr. Mellanby finds that there is a very close inter-relation between the influences tending to deficient calcification of bone and the production of rickets. He recognizes that combinations of influences are at work even in the laboratory. While it has been necessary, at first at all events, to test the conditions with one variable at a time, the results of several factors acting together have to be taken into account. Further investigations have to be undertaken before all possible combinations can be discovered and tried. Surveying the factors which tend to favour the development of rickets and those which tend to prevent

[1] *The Lancet*, November 5, 1921.

[2] "Experimental Rickets," by Edward Mellanby, M.A., M.D.; Special Report Series, No. 16, Medical Research Council, Privy Council, 1921.

it, he suggests that in children the association of an excessive bread intake with a diet deficient in fat-soluble A vitamin may be the commonest cause of rickets. Deficient calcium probably plays an important part in the interference with bone growth at a late stage. He emphasizes the fact that the action of the anti-rhachitic vitamin may be augmented or inhibited by other influences. An ample supply of calcium and of phosphorus, the presence of meat in the diet and the possibility of exercise tend to increase the action of the vitamin. Excess of bread, leading to an increase in the body weight, especially when associated with confinement and with a disturbed balance between protein and calcium in milk, interferes with the action of the vitamin. He hints at the possibility that the vitamin may effect its action through the agency of some or all the ductless glands. There would seem to be a strange controlling influence on the process of calcification exercised by the thyreoid and other endocrine glands. He finds no evidence in support of the assumption that rickets is due to an infection.

The careful critic will endorse Dr. Mellanby's utterance that it is impossible to combine the facts into a simple general hypothesis at present. Definite evidence of all the facts must first be collected.

OCCIPITO-POSTERIOR PRESENTATIONS.

Almost every general practitioner is engaged in obstetric practice. His patients seek his aid because as a registered medical practitioner he is supposed to have been adequately trained in the practice of his profession and the law assumes that he is possessed of sufficient knowledge and skill to be entrusted with the safety and health of those needing medical attention. His medical education is conducted in a properly instituted university or medical school and the curriculum is sanctioned by those holding responsible positions in the universities or controlling bodies. The medical student acquires or should acquire experience and skill in the conduct of both normal and abnormal labour. If his training is faulty, he becomes a victim of circumstances and is required to bear the full responsibility of his mistakes. While it must be recognized that the average medical student is not trained in the obstetric art as thoroughly and as effectively as he should be, and while he is rarely required to produce real evidence of the possession of a high degree of knowledge and skill before he is granted a certificate to practise, he soon realizes that in the world of real fact he is responsible for the safety of human lives and he cannot escape from the burden.

Every medical practitioner attending a woman in child-birth must be prepared to recognize when the presentation of the vertex of the fœtus is unusual. Dr. H. D. Fair delivers a very sensible and direct lecture to the incompetent or careless general practitioner who mismanages an occipito-posterior presentation.[1] It is said that the frequency of this presentation is approximately one in five. Nature comes to the aid of the woman and her babe in all but 4% by providing for the long rotation of the occiput as the head descends on to the floor of the pelvis.

Dr. Fair bids the tiro to keep his hands off and to seek skilled help in labours characterized by an occipito-posterior presentation. A premature attempt to drag the head through the maternal pelvis, even if assistance be given to internal rotation, may loosen the soft parts from their pelvic attachments and inflict serious damage to structures, such as the urethra, the bladder or the rectum. The unskilled or improper use of forceps under these conditions may injure or kill the infant by causing asphyxia, cerebral hæmorrhage or other forms of trauma. Dr. Fair holds that the presence of an occipito-posterior presentation should be recognized when the fœtal head does not advance through a sufficiently roomy pelvis in spite of strong pains and full dilatation of the mouth of the womb. It might reasonably be expected that the practitioner would ascertain in all cases the presentation of the vertex, the lie of the fœtus and the capacity of the mother's pelvis.

Dr. Fair advocates manual conversion of the unusual presentation into one with the occiput pointing forwards. The patient is anæsthetized and the gloved hand is inserted into the vagina. In the case of the more common right occipito-posterior presentation, the left hand is used. It is inverted and passed to the left side of the pelvis, the thumb pointing to the right. The head is firmly grasped and pushed upwards until it is free. As the occiput rotates forwards, the operator's hand comes into a more comfortable position and gains more strength. The right hand is used externally on the patient's abdomen to promote rotation of the fœtal body. If a large amount of amniotic fluid is still present in the uterus, rotation may be continued until the head lies in the left occipito-anterior position. The anæsthetic is then discontinued and the corrected position and presentation is maintained until the vertex is driven into the cavity of the sacrum. If necessary, forceps may then be applied and delivery effected.

This method, although practised both in Australia and elsewhere, is not described in the textbooks in common use. It is regarded by some obstetricians as a procedure which in unskilled hands is not devoid of danger. The practitioner is chosen in preference to the midwife or the untrained person because of his supposed skill and knowledge. Although this exigency is relatively uncommon, every medical practitioner should be prepared to exhibit sufficient skill and care to render it a safe procedure. The older method of endeavouring to facilitate flexion during the descent of the head on to the floor of the pelvis and the subsequent manual rotation of the occiput toward the *symphysis pubis* is less effective and more difficult. Properly managed, rotation above the brim is capable of saving the infant's life without increasing the risk to the mother.

[1] *Medical Record*, December 24, 1921.

Abstracts from Current Medical Literature.

ORTHOPÆDIC SURGERY.

Bone Grafts.

Fred H. Albée (*Annals of Surgery*, August, 1921), in a discussion of "certain fundamental laws" underlying the surgical use of the bone graft, draws attention to this important subject. Since the war, in France alone, over 20,000 patients with pseudo-arthrosis have been awaiting operation. In Albée's opinion the introduction of foreign substances, such as metal plates, wire, nails, etc., is contra-indicated in the treatment of ununited fractures and under no circumstances should they be used in association with a bone graft, which he considers the best method of treatment. Metal plates produce absorption of healthy bone and would therefore be doubly inimical to a bone graft which is struggling for an existence. Further, the plate, if present, robs the graft of mechanical strength, which is of great assistance to its growth. Judging by the results of 2,000 cases of bone grafting, Albée thinks that the "inlay" type of technique is the best. In ununited fractures the ends of the fragments have lost their osteogenetic power and the bone graft supplies these powers from the activity of the living bone cells in its substance. The graft should be autogenous. It may be made by sliding a piece of bone from one of the fragments to bridge the gap or it may be taken from another bone, such as the tibia. In cutting the graft, all layers of the bone should be included, *viz.*, periosteum, compact bone, endosteum and marrow. The graft should be placed so that each of these layers is in contact with the corresponding layers of the fragments. The graft should extend beyond the broken edges into healthy bone. It should fit with "cabinetmaker exactness." Osteo-periosteal grafts, *i.e.*, grafts containing a strip of periosteum with some bone on its under surface, and pedicled grafts are condemned. In holding the graft in place Albée prefers kangaroo tendon as suture material. Post-operative fixation should be immediate and absolute. Plaster of Paris is the most suitable material and fixation should be maintained for ten weeks.

Autogenous Bone Transplantation.

M. S. Henderson (*Journal of the American Medical Association*, July 16, 1921) has reviewed the records of cases of bone transplantation at the Mayo Clinic over a period of eight years. In spinal transplantations definite end results are not easily determined, since the spinal condition is practically always a secondary manifestation of a focus elsewhere. In 132 cases the author was able to obtain sufficient information to regard 76 patients (50%) as definitely cured, 29 (21.99%). as improved, and 22 (16.16%) as unimproved. Twelve (9.09%) died later. The cause of death in most cases was disseminated sclerosis. The author remarks in this connexion that draining sinuses, wherever situated, and pulmonary tuberculosis, unless it is quiescent, contra-indicate surgery. The spinal grafts used were held in position when possible with beef bone screws. This operation is not advised for children, but in adults the outlook appears to be more favourable in those cases in which the patients are subjected to operation. The number of patients treated for un-united fractures and bony defects was 247. As a group this class of affection is difficult to treat, on account of various pathological changes at the site of the lesion. The author has been able to trace 223 patients only, but of these 79.3% were cured. A number of complications and details of the various bones on which operations were performed are given. Infection was a prominent cause of failure, but did not always lead to a bad result. Sepsis was much more common in this class of case than in the spinal operation. To avoid fracture of the graft a massive graft, fixed in place with bone screws, is advocated, though in many cases the inlay graft is quite an effective and good procedure.

Static Deformities as a Factor in the Production of Hypertrophic Arthritis.

Robert Patek (*Journal of Orthopedic Surgery*, July, 1921) has examined the theory that static deformities are the cause of so-called hypertrophic arthritis. Preiser contended that the first step in the development of arthritis was a change in the relationship of the two articulations. Thus, in fracture of the neck of the femur the soft tissues are subjected to torsion and changes occur in the nutritive vessels running to the joint. Structural changes follow. The cartilage degenerates, the condition of *lipoma arborescens* arises and finally *arthritis deformans* is revealed. Fracture is not the only cause, since conditions such as *coxa vara* and flat-foot may be responsible. A number of experiments on animals by Ely and Cowan and by Axhausen are quoted and examined, but the author believes that X-ray plates dealing with such conditions as Pott's fracture, congenital dislocation of the hip and club feet furnish ideal experimental evidence. When there is partial or complete ankylosis of any joint, the unaffected joints should also show hypertrophic changes. The author examined 27 plates and found that the percentage of cases of hypertrophic arthritis in which static strain is also present, is 11%. This is practically the same as the percentage seen in all patients coming to the clinic in which the author works. His conclusion from these observations is that hypertrophic arthritis is not due to static strain, since it may also occur in individuals whose posture is excellent and who have never subjected their joints to strain. The more likely cause of the condition is absorption of a toxin from some possible focus of infection.

The Mechanism of the Human Foot in Walking.

Alexander Gibson (*Journal of Orthopedic Surgery*, May, 1921) writes that the arches of the foot are really springs. He compares the structures of the lateral arch to the short, strong springs, and the medial arch to the long, shock-absorbing springs, in motor-car construction. In the foot these two types of springs have been placed side by side and in the act of walking the weight is transferred from one to the other. In other machines the long, flexible spring is apt to give way and in the foot the medial side is the weaker and tends to become strained when subjected to too great a deforming stress. The author analyses the movements of the foot in the act of walking and suggests that the elaborate mechanism of the foot is for the purpose of reducing the movements of the head to a minimum. A heel of moderate height saves energy, both in regard to the amount of weight to be lifted and the distance through which the weight has to be moved. Heels of excessive height render the ankle joint unstable, reduce the force of contraction of the calf muscles, elongate the dorsi-flexing muscles and tend to keep the muscles on guard, to act as ligaments. Fatigue, with subsequent stretching, results and the symptoms of foot-strain appear.

Vertico-Frontal Fracture of the Patella.

René Villar (*Journal de Médecine de Bordeaux*, March 10, 1921) describes a rare case of fracture of the patella. The line of fracture was vertico-frontal, so that apparently the patella was duplicated. The patient, a soldier, had a comminution of the patellar apex without displacement and the vertical fracture, which is likened to the splitting of an oyster into its two shells, was discovered only at operation. The two shells of the patella were sutured together by catgut stitches passed through the lateral patellar tissues.

MORPHOLOGY.

The Heliocoidal Architecture of the Small Intestine.

Eben. J. Carey (*Anatomical Record*, May 20, 1921) outlines his observations on the structure and function of the small intestine and deduces a novel theory as to its action, namely, that the intestine really propels its contents by a screw-like peristalsis, owing to the arrangement of the muscle layers in spirals. He observes that Mall in 1896 first demonstrated the spiral nature of the submucosa, but failed to observe a similar arrangement in the muscle layers. The author has shown that in the developing gut the epithelial tube grows in a left-handed spiral of accelerated growth, while the outer mesenchyme forms a

layer of retarded growth. From an examination of carefully dissected fresh material he believes that the so-called circular coat is arranged in a spiral which makes a complete turn in every 200 mm. to 500 mm. The spiral in each case is a left-handed spiral. Further confirmation was obtained by placing a cotton bolus smeared with vaseline in the cephalic end of a piece of small intestine 15 cm. long, which had been removed from a pig and placed in warm saline solution. In a short time the bolus was expelled at the caudal orifice. Inspection of the external surface of the bolus revealed a left-handed spiral arrangement of the vaseline coating. In the submucous connective tissue layer the inner spiral makes one turn in every 0.5 mm. to 1 mm. and the outer one turn in 4 mm. to 10 mm.. Discussing the bearing of these facts on the movements of the small intestine, the author reviews Bayliss and Starling's postulate of a local nervous mechanism to explain peristalsis. Those authors stated that they could not imagine any muscle fibre or collection of muscle fibres which would relax on one side and contract on the other side of an excited point. By a series of experiments in which he removed a ring of the outer muscle coat in the one case and of the inner coat in the other case, the author believed that he observed failure of conduction of caudal dilatation and of constriction in each respective case. He attempts to correlate these facts with Bayliss and Starling's enterographic records of the simultaneous contractions of the inner and outer muscle coats of the small intestine. He shows that the contraction of the inner coat will inevitably trail that of the outer and concludes that the spiral architecture of the intestinal muscle clearly explains the phenomena of cephalic constriction and caudal dilatation without invoking the aid of hypothetical nerve paths. Peristalsis, therefore, is a duplex contraction phenomenon produced by the differential rate of translatory advance of the two contraction waves in the outer and inner muscle layers respectively.

Striped Muscle Fibres and Langley's Receptive Substance.

J. BOEKE, of Utrecht (*Brain*, April, 1921) has published a *résumé* of recent observations and ideas on cells and cell structures. He states that the old conception that each cell is a single organism, is undergoing revision. Even such a structure as a single adult involuntary muscle cell, such as is found in the small intestine, is probably derived from more than one cell of the embryonic syncytium from which it developes. Again, in the case of the cross-striated voluntary muscle fibres, it has been shown, not only that they are built up by the end-to-end junction of a number of cells of the muscle plate syncytium, but also that more than one muscle plate or myomere may contribute to the formation of a single muscle fibre. He next emphasizes the exquisite harmony which exists between the different tissue elements and the domination of the individual over those elements which compose it, *viz.*, the cells. He next describes the intra-protoplasmic ending of nerve fibres in muscles fibres, voluntary or involuntary, and emphasizes the fact that in regeneration of nerve fibres, the neurofibril is conducted to its termination within the protoplasm of the bridging cells. Hitherto it has been thought that in all vertebrates but *Amphioxus* there lies a stretch of undifferentiated granular sarcoplasm between the terminal ramifications of the *neuro-fibrillæ* and the contractile substance, the *myo-fibrillæ*. All will maintain that this is correct, if ordinary staining methods are used. But, as the author has shown, with carefully stained Bielschowsky preparations, a different picture is seen. A delicate reticular formation is revealed, the "peri-terminal network," between the *neuro-fibrillæ* and the sarcoplasm of the muscle. Traces of this network have been seen by previous observers. He believes it is of sarcoplasmic origin and not neuro-fibrillar in nature. It disappears more slowly than the *neuro-fibrillæ* in cases of degeneration following experimental nerve section. These and other facts suggested to the author that in the peri-terminal network there exists a morphological basis for Langley's receptive substances and that such a "peri-terminal network" is demonstrable, not only in the case of motor nerve endings, but also in several of the various types of sensory corpuscles, such as those to be found in the pig's snout.

Changes in Heterosexual Parabiosis.

NAOHIDE YATSU (*Anatomical Record*, May 20, 1921) describes the changes in the reproductive organs in heterosexual parabiosis of albino rats. Twenty-four successful male-female parabioses were formed by operation. The individuals used were in some cases from the same litter and in others from different litters, but in all cases they were of the same age. The changes observed are briefly summarized as follows: In parabiotic females ovulation commenced at the normal period. A definite deteriorating effect was observed on the Graafian follicles, though some follicles must have been unaffected, since normally developed fœtuses appeared. The changes were more of the nature of an acceleration of ordinary degenerative processes, coupled with an enormous overgrowth of the interstitial cells. The changes in the uterus of the parabiotic female were not very marked, being chiefly a hyperplasia of the *stratum subserosum*. As regards the males in such parabioses, the testes remained functional, as proved by the fact that a female kept with a male-female parabiosis gave birth to a litter, copulation taking place 134 to 135 days after the parabiotic operation. A series of parabioses composed of females and castrated males were formed by operation. In this series the ovary was markedly affected, none of the Graafian follicles developing normally and no *corpora lutea* being formed. The uterus was also distinctly affected; fluid accumulated in its cavity, its glands disappeared, the wall thinned out and it became distended with fluid. No definite hypothesis was put forward to explain these phenomena. A further series was composed of spayed females and male parabioses. In this series sperm formation was somewhat delayed, but on the whole the testes in all the series were little affected.

The Oxygen Supply of Animals Living in Water Containing No Dissolved Oxygen.

A. E. COLE (*Journal of Experimental Zoology*, May, 1921) presents the results of his study on the oxygen supply of animals living in water containing no dissolved oxygen. In 1908 it was reported that several animals, including a mollusc, annelids and the larvæ of several insects annually passed periods of three to four months at the bottom of Lake Mendota in an environment in which oxygen could not be demonstrated. The loss of dissolved oxygen is due to the lack of mixing influences of currents and winds when the lake becomes frozen over. The water becomes stagnant, especially in the deeper parts of the lake and all dissolved oxygen is used up by animals and by decaying organic material. In spite of this, the animals mentioned are able to lead an active life in this stagnant area of the water. Various theories as to the sources of their energy have been advanced, but the author points out that, although some of these views may cover some of the animals concerned, they do not provide for all of them. He believes that the oxygen supply is derived from a process in the decomposition of plant tissues in which an oxidizing substance is set free. This substance is believed to be atomic oxygen, which can be utilized by all of these animals, living as they do in close relationship with the disintegrating plant fragments.

Abnormal Duodenum.

JAMES W. PAPEZ (*Anatomical Record*, June 20, 1921) describes a case of malposition of the duodenum. The duodenal loop lay almost wholly to the right of the middle line and proximal to the superior mesenteric vessels. The duodenum, therefore, did not curl under the mesenteric vessels in its course to the duodeno-jejunal junction. The mesentery was longer than normal, allowing a considerable downward displacement of the ileo-caecal junction and caecum. The caecum and appendix were contained in a large oblique inguinal hernia. No evidence was found of pathological peritoneal adhesions. Mumford, while performing a gastro-jejunostomy on a patient in 1906, noticed that there was an incomplete formation of the duodenal curve. The duodeno-jejunal junction was so far to the right that, as the stomach filled, it pulled away from the jejunum at the site of operative union.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held in the Pathological Lecture Room at the Melbourne Hospital on November 8, 1921. The chair was taken by DR. C. H. MOLLISON.

DR. MOLLINSON intimated that an apology for inability to attend and participate in the discussion had been received from DR. FELIX MEYER.

Cæsarean Section.

DR. R. H. MORRISON read a paper on "Cæsarean Section" (see page 229).

DR. H. CAIRNS LLOYD opened the discussion with a second paper entitled "Cæsarean Section" (see page 231).

DR. ARTHUR SHERWIN congratulated Dr. Morrison on the exceedingly interesting paper he had put before the meeting.

That widely divergent opinions as to the value of Cæsarean section were held was evident from the conflicting views just expressed by men of such repute as Drs. Morrison and Cairns Lloyd. In a search further afield it was found that Schwartz, of St. Louis, in discussing the treatment of *placenta prævia* by Cæsarean section, had said that this operation was never necessary; Zinke, of Cincinnati, an equally capable obstetrician, had said that it was; Shauta, of Vienna, had said that it was not and Zweifel, of Leipzig, formerly against it, had recorded that it should be practised occasionally. The view of De Lee was that Cæsarean section held a fast place in the treatment of this complication of pregnancy (*placenta prævia*), while Whitridge Williams held with its use only in those rare cases of centrally situate *placenta prævia*, associated with a rigid cervix and complicated by profuse hæmorrhage.

He gathered that Dr. Morrison favoured Cæsarean section in *placenta prævia* as yielding better maternal and fœtal results. In Döderlein's series of 5,000 patients with *placenta prævia* there had been a maternal mortality of 8% and a fœtal mortality of 54%. Cæsarean section had been performed on 146 of the patients and had yielded a maternal mortality of 8.9% and a fœtal mortality of 30%.

Schatz in 1915 had reviewed a series of 173 cases treated by the method of Braxton Hicks, with a maternal mortality of 1% and a fœtal mortality of 33%. Zweifel's series embraced 62 patients with *placenta prævia*. Cæsarean section was not employed and there were no maternal deaths.

At the Queen Charlotte's Hospital, London, during the years 1910, 1911 and 1912, sixty-seven patients with *placenta prævia* were treated. Two mothers died, which was equivalent to a mortality of 3%. Cæsarean section had been performed only twice; one of the patients had recovered and the other, moribund at the outset, had died almost immediately.

Whitridge Williams, in a consideration of the vexed question of the value of Cæsarean section in obstetrics, had emphatically asserted that the indications for operation must be recognized early in order that it might be performed at the time of election; that the mortality increased with every hour that the patient was in labour and that failure to recognize the early indications implied a defective medical training. How did these assertions apply to the profession in Australia? It was found, on looking up the records of the Melbourne Women's Hospital, that sixty-seven patients had been admitted during the past two years for eclampsia, a condition generally recognized as preventible. Of these, seventeen had died, a mortality of 25%. Had the seriousness of the condition been recognized earlier by the medical attendant, Cæsarean section might have been performed more frequently and a number of lives saved.

In conclusion, Dr. Sherwin pointed out that the maternal death-rate at the Melbourne Women's Hospital for the past two years was 32‰; at the Rotunda Hospital in 1910 the maternal mortality was 5‰ and at the Queen Charlotte's Hospital, London, during the three years of his association with that institution the maternal death-rate was less than 3‰.

If hospital results were an indication of the obstetrical knowledge of the medical community, the above figures should supply some food for consideration and have a very direct bearing on the value of Cæsarean section.

DR. R. N. WAWN said that, although he had been unable to prepare any statistical contribution to the discussion, perhaps he might take the opportunity to express some views on the important subject of the evening.

Drs. Morrison and Sherwin had laid all due emphasis on the necessity for careful consideration regarding the most favourable time to undertake Cæsarean section in any given instance; in the views of Dr. Cairns Lloyd on circumstances rendering the operation inadvisable there were many points to bear in mind and to follow.

With reference to Cæsarean section for *placenta prævia*, Dr. Wawn considered that the abdominal operation should be limited to the type of case in which the placenta was centrally placed over a non-dilated and rigid *os*. He did not think it advisable to perform Cæsarean section in lateral and marginal *placenta prævia*.

When he came to discuss the utility of Cæsarean section in eclampsia, he felt that as yet he had not a very large experience upon which to base judgement. Cæsarean section appealed to him as the best method of treatment for the primiparous eclamptic, who was admitted to hospital in convulsions and comatose, with no labour pains and a rigid cervix.

If clearing the uterus led to the control of the fits and the saving of life, was it not advisable to consider and perform Cæsarean section, Obviously the course adopted by the individual obstetric surgeon was determined by his view of the source of the toxins in the eclamptic state. If it were accepted that the poisons were elaborated in the uterus, the sooner it was emptied the better.

DR. A. NORMAN MCARTHUR discussed first the question of the treatment to be pursued in dealing with pregnancy and associated fibroids. If the fibroid tumour were in the upper portion of the uterus and unlikely to obstruct labour, gestation might be allowed to continue and natural delivery to ensue. Some anxiety, however, might be experienced in the after-treatment.

When the myomata were in the lower segment of the uterus and appeared likely to offer obstruction to labour, the patient might be offered her choice of myomyectomy in the early months, with a certain risk of miscarriage, or Cæsarean section at or near term.

Dr. McArthur detailed the history of a patient in whom a fibroid tumour at the junction of the cervix and lower uterine segment posteriorly had complicated pregnancy. In this instance myomectomy in the early months had been successful and a miscarriage had been averted.

In dealing with eclampsia, if the patient were seen early enough and the surgeon were satisfied that a good trial had been given to eliminative measures, in spite of which the convulsions continued, consideration might be given to Cæsarean section as offering a means of obviating the fits and improving the chance of a living child. He recollected an instance of eclampsia and in that patient severe convulsions supervened on the eighth day after a natural and until that time uneventful confinement. Might not such *post partum* convulsions occur after Cæsarean section? Where were the toxins elaborated? Did Cæsarean section necesasrily cut them off at their source?

Dr. McArthur concurred in the performance of Cæsarean section for central *placenta prævia*, which was, in the absence of such an efficient method of dealing with it, a truly terrifying condition.

He was completely in accord with the conservative principles enunciated by Dr. Cairns Lloyd on the question of Cæsarean section. They had formerly witnessed the establishment of a fashion in certain operations and in his opinion Cæsarean section at the present time was "fashionable." Who would think of resorting to Cæsarean section in order to eliminate the pains of labour? It seemed an extreme suggestion, but he sometimes wondered if the present vogue were not approaching it.

With reference to early Cæsarean section, or metrotomy as it had been termed by Dr. Morrison, Dr. McArthur said that it was a most advantageous procedure in certain cases. He related several favourable experiences. One was that of a patient so gravely ill with hyperemesis that the loss of blood attendant upon a hurried emptying of the uterus was likely to be fraught with the most serious risks. He had been enabled by abdominal section to evacuate the contents of the uterus with a minimum of hæmorrhage and shock and a successful outcome for the patient.

In conclusion, Dr. McArthur said that he thought Dr.

Sherwin unfair in his strictures on the obstetric practice of the general practitioner. The man in a busy practice was too frequently overworked and underpaid and it was impossible for him to keep ultra-scientific records. Nevertheless, the average practitioner was sound in his midwifery and was not always responsible for the desperate condition of patients frequently seen in hospital. In this connexion, due allowance had to be made for the activities of the "gamp."

DR. B. MILNE SUTHERLAND, O.B.E., in expressing his appreciation of Dr. Morrison's paper, said that he interpreted the paper rather as a review of the results attending Cæsarean section when employed for its various indications than as advocacy by Dr. Morrison for its use in the several conditions he had discussed.

He had followed with great interest the remarks of Dr. Cairns Lloyd and was thoroughly in accord with the views held by him. He wished to support Dr. McArthur in taking exception to the criticism on the standard of midwifery in general practice.

With reference to the subject under discussion, Dr. Sutherland said that he considered certain points were debatable and he proposed to exclude those cases about which there should be no question. For instance, it was evident that some regarded central *placenta prævia* as an absolute indication for Cæsarean section, but, considered from the point of view of the mother, was she necessarily any better after Cæsarean section? Did she not tend to continue losing after the operation?

In the case of an elderly primipara with little prospect of a second child, to obtain a living child became a paramount consideration. In these circumstances, both in *placenta prævia* and eclampsia, it was justifiable to suggest Cæsarean section, particularly in view of the fact that a rigid *os* was most likely to be encountered in an elderly primipara.

Cæsarean section ought also to be considered in the presence of fibroids in the lower segment of the uterus; those situated in the upper portion might be ignored. Of the more lowly placed tumours, a certain number would be withdrawn above the pelvic brim during labour, as Dr. Lloyd had indicated, but was it possible to foresee when this was going to happen and when the myomata would remain in the pelvis as an obstruction to labour?

In the case of dermoid and other ovarian cysts and pelvic tumours there was the alternative of removing the tumours in the early months of pregnancy and allowing gestation to continue to term when Cæsarean section and the removal of the tumour might be undertaken. Although he recognized that there could be no hard and fast rule, he inclined towards the former course when the patient was seen early in her pregnancy.

In conclusion, Dr. Sutherland said that he was in complete agreement with a former speaker regarding the failure of Cæsarean section in accidental hæmorrhage. The results were so bad as to contra-indicate Cæsarean section in accidental hæmorrhage, because of the degenerated condition of the organs.

DR. F. L. DAVIES said that, in his opinion, Cæsarean section was often undertaken for insufficient reasons. He deprecated the present-day tendency to extend the indications for this operation. He narrated the history of a patient who, having had one baby weighing four kilograms, consulted a medical man in regard to her second confinement. No mishap had attended the first delivery, with the exception of some perineal laceration, which had been repaired. This lady was much taken aback when she learned that her second child was to be delivered by Cæsarean section. She thereupon changed her medical attentant and in due course was delivered naturally of a healthy baby in an uneventful confinement.

Dr. Davies remarked that the too frequent adoption of the comparatively easy method of delivery offered by Cæsarean section must inevitably lead to deterioration in medical skill and diagnosis in the conduct of midwifery practice.

DR. A. M. WILSON, D.S.O., said that he had reason to believe that he was regarded as one of the advocates for the more extended use of Cæsarean section, but he wished to state very emphatically that he never advised the operation without careful preliminary consideration and discussion. Of the last fifty operations of this nature at the Melbourne Women's Hospital, he had performed twelve, with one maternal death (severe eclampsia) and two fœtal deaths (both in severe eclampsia). Six operations had been undertaken for pelvic contraction, three for eclampsia and three for *placenta prævia*. Two of the six women operated upon for contracted pelvis had previously undergone Cæsarean section and indeed in one patient he had been the sixth operator to deliver her in this manner. He related the details of the remaining four:

The first patient was a woman the subject of old hip disease in whom the right leg had become fixed in a position of extreme adduction and obstructed the pelvic outlet. The second patient was a woman with a minor degree of pelvic contraction who had had two still-born babies previously (one after induction of labour). The third and fourth patients each had an insuperable pelvic contraction; they had been seen first after having been in labour for some hours.

His results in the three cases in which he had performed Cæsarean section for *placenta prævia*, were represented by three live mothers and three live babies. In the consideration of Cæsarean section in relation to *placenta prævia*, he always required three essential conditions to be present before he undertook the operation. He required that the placenta should be centrally placed, that the mother should be in good condition and that the baby should be alive and viable. In fact, he would not embark upon Cæsarean section for *placenta prævia* in any other circumstances.

He regarded any degree of exhaustion of the mother as a contra-indication to Cæsarean section and considered that the method of Braxton Hicks was the best way of dealing with cases in which the child was not viable or was dead.

With reference to the utility of Cæsarean section in eclampsia, Dr. Wilson said that he had found it difficult to get an authoritative statement, owing to the existence of so many divergent views on the question. In one period of six months he had performed the operation in four instances of eclampsia; three living mothers and two live babies had been the outcome. However, he had not operated by Cæsarean section for eclampsia during the last twelve months and his present inclination was to regard eclampsia as an unsuitable condition for routine treatment by Cæsarean section. Further, if albuminuric patients were carefully supervised, they could be carried on to term in many instances, or at least to a point at which premature labour could be induced. The results attending the induction of labour were very satisfactory. It was very much better to induce labour than to allow a patient to enter into convulsions and then to perform Cæsarean section.

DR. ROBERT FOWLER, O.B.E., asked Dr. Morrison for an expression of opinion regarding the scope for Cæsarean section in obstetrical cases complicated by cardiac disorders. He felt that some discussion on this point was necessary, as prognosis, immediate and remote, was so difficult and an error in judgement might be calamitous.

Within recent months at the Melbourne Women's Hospital, of five patients with cardiac disease and failure of compensation, one had died during the latter part of pregnancy and two had died during labour; one had delivered herself spontaneously and the fifth had been delivered by Cæsarean section at term and had been sterilized.

For his own part, he considered that for patients with uncompensated cardiac disease an abdominal hysterotomy, either at term or for the premature termination of pregnancy, was less exhausting than labour. Again, the desirability of sterilizing the patient afforded a further indication for the operation. If the administration of a general anæsthetic were considered too great a risk, the operation might be carried out under stovaine spinal analgesia.

DR. J. W. DUNBAR HOOPER said that he wished to consider the subject from the point of view of the private practitioner who had no large hospital behind him. He entered a plea for the very great usefulness of pubiotomy to one so placed. Pubiotomy provided a very efficient means of dealing with minor degrees of pelvic contraction.

Although he knew of men who had been twenty years and longer in practice and who had not sustained any maternal mortality, yet had never performed Cæsarean section, he thought that every man conducting a large midwifery practice should be competent and prepared to carry out the operations of pubiotomy and Cæsarean section should the occasion arise. At the same time, he was

in agreement with those speakers who had advocated a wise conservatism in the employment of Cæsarean section.

Dr. Hooper added that the forty-seven consecutive cases in which Cæsarean section had been performed at the Women's Hospital, Melbourne, without any mortality, constituted an excellent record. He wished to say that the implication conveyed in Dr. Sherwin's remarks of a poor standard of midwifery among men in general practice was altogether contrary to his experience.

DR. A. J. OPIE remarked that the present vogue of Cæsarean section reminded him of the great popularity of gastro-enterostomy some years ago. They had witnessed the rise and fall of the latter operation and whereas formerly it had been undertaken for a diversity of conditions, its use was now restricted to the clearly defined indication, pyloric obstruction. Possibly the scope for Cæsarean section was destined to contract in a similar manner.

Dr. Opie stated that in a total of 1,200 births over a period of some years in his country district there had been only three maternal deaths, but Cæsarean section had been performed only once. If the operation were found to be necessary for less than 1 in 1,000 women in the country, surely a similar rate should obtain in the city.

He was of opinion that the induction of premature labour was a very satisfactory means of dealing with moderate degrees of pelvic contraction.

DR. R. H. MORRISON, in reply, said that he hoped that the fact of his having read a paper on the indications for Cæsarean section would not cause him to appear as an advocate of the widely extended use of this operation. In showing how the indications had been extended of late years, he had also endeavoured impartially to point out disadvantages and dangers where they existed. It was to be remembered also that discrimination must be exercised in every individual case and no hard and fast rules for guidance could be laid down.

In discussing Cæsarean section in eclampsia, he had tried to show that good results, with low mortality, attended its use by competent operators in early, suitable cases.

In regard to *placenta prævia*, he had endeavoured to point out how generally disappointing Cæsarean section was. It should be limited to the one condition—that of central *placenta prævia*—and should then be performed before the onset of labour.

With reference to the question raised by Dr. Fowler, Dr. Morrison said that he considered that the cardiac condition should be made a matter for consultation with a physician.

Speaking broadly, the sooner the pregnancy was terminated after failure of compensation the better; but he would not go so far as Dr. Fowler in advocating sterilization. Many such women subsequently regained compensation and bore children successfully.

MEDICO-POLITICAL.

MEETING OF THE FEDERAL COMMITTEE.

(Continued from page 227.)

THE FEDERAL COMMITTEE, continuing its deliberations on February 9, 1922.

History of the Australian Army Medical Corps in the War.

THE HONORARY SECRETARY asked leave to refer to the subject of the proposed history of the Australian Army Medical Corps in the war and to deliver a message from the Directors of the Australasian Medical Publishing Company, Limited. He gave a short account of the negotiations which had been conducted by the Company with the Department of Defence from the time when the Federal Committee accepted the offer of the Company to undertake the publication (see THE MEDICAL JOURNAL OF AUSTRALIA, February 14, 1920, page 158). Many difficulties had arisen, but the majority of these had been overcome. The Directors of the Company had asked the Acting Minister for Defence to receive a deputation with the object of discussing a misunderstanding that had arisen. The Acting Minister had appointed a time on the following day when he would be pleased to receive the deputation. The Directors invited the Federal Committee to associate itself with them in this deputation. It was hoped that after this interview the agreement between the Department of Defence and the Australasian Medical Publishing Company, Limited, would be finalized and that the work of writing the history would proceed without further delay. The Committee determined to associate itself with the Directors for this purpose.

Relationship of the Overseas Branches to the Parent Association.

THE HONORARY SECRETARY referred to his mission to England as representative of the Branches of the British Medical Association in Australia in July, 1921. The main facts concerning the conference of the representatives of the overseas Branches with the Council of the British Medical Association and of the deliberations of the Representative Body on the subject of the constitution of the overseas Branches had been published in the Supplement to *The British Medical Journal* of July 23, 1921. He pointed out that the Council had exhibited a genuine desire to meet the wishes of the Australian Branches. Personally he had received very friendly treatment at the hands of the Council. He read several letters conveying messages of assurance of assistance and expressing the thanks of the Council and its officers for the part taken by the Australian Branches in connexion with the organization of the Association outside the United Kingdom.

Reference was also made to the draft amendment and additions to the Articles of Association and the By-Laws which would be presented at the Representative Meeting, to be held in Glasgow in July, 1922. These amendments and additions had been published in the Supplement to *The British Medical Journal* of December 24, 1921. An explanatory letter from the Medical Secretary had been received with advance copies of the Supplement.

DR. W. N. ROBERTSON asked for information concerning the contribution which the Council had made to the Branches in Australia in connexion with the work of the reorganization of the overseas Branches. He was informed that the sum of £700 had been contributed in this way. He therefore moved:

> That the Federal Committee, on behalf of the Branches of the British Medical Association in Australia, convey to the Council of the Association their thanks for the generous contribution of £700 and to express their appreciation of the cordial welcome and assistance extended to Dr. R. H. Todd, the delegate of the Branches in connexion with the Conference held in London in 1921.

The motion was seconded by DR. F. S. HONE and was carried.

It was further resolved that the letter from the Deputy Medical Secretary, dated August 10, 1921, be published in THE MEDICAL JOURNAL OF AUSTRALIA as follows:

> DEAR DR. TODD: I am directed by the Chairman of the Organization Committee to transmit to you formally the following resolution, passed, as you know, unanimously and with acclamation by the Committee at its meeting on August 4, attended by Mr. Hempson and yourself:
>
> "Resolved: That the Committee express to Dr. Todd its cordial appreciation of the good work done by him for the Association, including especially the work accomplished by means of his present visit towards the strengthening of the Association in Australia and closer cooperation of the Association in the Commonwealth with the Association at home; and its warm good wishes for the Australian Branches and for himself personally."
>
> Yours sincerely,
>
> G. C. ANDERSON,
> Deputy Medical Secretary.

A further resolution was carried to the effect that the Federal Committee desired to place on record its appreciation of the services rendered by Dr. R. H. Todd especially in connexion with the conference of the representatives of the overseas Branches with the Council.

Proposed Alterations of Articles and By-Laws.

The alterations of the Articles and By-Laws dealing with the incorporation of overseas Branches and with the establishment of Federal Councils were considered *seriatim*.

Some discussion took place in connexion with paragraph 2 of the new draft Article 11A, which requires that the objects of an incorporated Branch as set out in its Memorandum of Association should coincide with the objects of the British Medical Association. It was pointed out that it was not made quite clear whether the Memorandum of Association of the Branch was to coincide in all respects with the Memorandum of Association of the parent body. The British Medical Association was a limited liability company not for gain, so that it was not competent for the Association to distribute its profits as a trading concern was able to do. It was assumed that it was intended that a corporate Branch should be in the same position. It was decided that it should be a suggestion to the Council that provision be made in the Articles that the corporate Branch be a company not for gain.

The Committee approved of the other proposed alterations of the Articles and By-Laws and of the proposed agreement between the Association and the corporate Branch.

Federal Income Tax.

Correspondence between the Federal Committee and the Federal Commissioner of Taxation was read, dealing with deductions of the cost of medical journals. The Federal Commissioner of Taxation had advised the Committee that it had been decided to allow claims up to a maximum of £10 *per annum* in this connexion, but the amount expended in each case should be stated by the taxpayer.

Cooperation of the Medical Profession with the Commonwealth Department of Health.

DR. J. H. L. CUMPSTON, the Director-General of Health for the Commonwealth, attended at the invitation of the Federal Committee.

MR. G. A. SYME welcomed Dr. Cumpston and informed him that the Committee would be glad to discuss with him in an informal manner any matters connected with the public health which claimed attention.

DR. CUMPSTON said that there was very little for him to present for discussion at that time. At the last meeting of the Federal Committee he had explained the three important chapters of the work of his Department which he had hoped to develope. In pursuance of that policy, the several Branches of the British Medical Association in Australia had been invited to send representatives to two conferences which had been summoned for the purpose of dealing with matters that had come within the purview of the Department of Health. The first was the conference on plague and the second was that on veneral diseases. All were agreed as to the advantages which had accrued to these conferences from having representatives of the Branches on both occasions. This meant that the general practitioner was being brought into closer contact with the subject of preventive medicine.

At the conference on venereal diseases, the question had been discussed concerning the cooperation of the medical profession in the general scheme of prevention. It had been stated that in certain parts medical practitioners were not sending in the notifications of infections to the proper authority in accordance with the provisions of the Acts. A resolution to the following effect had been adopted and this, together with an explanatory letter, would be forwarded to the Committee:

> That the operation of this legislation has been a contributing factor in the production of a more complete appreciation by the practising section of the profession of the national gravity of these diseases and of a valuable cooperation between the general profession and the health authorities directed towards the control of these diseases.
>
> That, as it is evident that in some States a proportion of the practising profession have not been closely observing the legal requirements in respect of venereal diseases, in order to secure an improvement in this respect, the conference, while recommending legal enforcement of the provisions of the Act, resolves that the Federal Committee of the British Medical Association be asked to arrange for the issue of a circular to all members of the British Medical Association in the Commonwealth, appealing for their cooperation and emphasizing their legal responsibilities in connexion with venereal diseases and instructs the chairman to communicate with the Federal Committee of the British Medical Association to this effect.

Those in charge of the administration of the Acts considered that the provisions should be enforced. The willing cooperation of the medical profession, however, would be preferable to compulsion. He hoped that the Federal Committee would arrange with the Councils of the Branches to urge the members to take this matter seriously. The importance of the provision might be emphasized in any communication the Branch Councils might make with their members.

The International Health Board of the Rockefeller Foundation had lent to the Department of Health two experts to assist in the institution of special activities of his Department. Dr. A. J. Lanza had been working steadily together with their own officers on various matters connected with industrial hygiene. Colonel F. F. Longley had recently arrived and had immediately embarked on work aiming at the improvement of general sanitation. It had been found, for example, that reform was needed in devising efficient sewerage schemes. Formerly, this matter had been largely carried out by sanitary engineers without reference to experts in hygiene.

He wished to inform the Committee that the institution of laboratories was proceeding. The preliminary work of the establishment of these laboratories had nearly been completed and they were making appointments of medical officers to take charge of the laboratories.

Dr. Cumpston said that he would like to make a suggestion concerning the forthcoming Australasian Medical Congress (British Medical Association). He would like to see preventive medicine play a leading part in the deliberations. He had proposed that the Executive Committee should consider whether it would be practicable to make the control of tuberculosis one of the principal subjects.

MR. G. A. SYME, in thanking Dr. Cumpston for his attendance and for bringing to their notice matters of importance to the medical profession, invited members to make remarks either on the subjects dealt with by Dr. Cumpston or on other cognate matters.

An informal discussion followed, in the course of which Dr. Cumpston gave some valuable information for the assistance of the Committee.

DR. CUMPSTON expressed his pleasure at having had the opportunity of attending the meeting and the thanks of the Committee were tendered to him before he withdrew.

Disposal of X-Ray Plates at Military Hospitals.

Correspondence was read between the Federal Committee and the Department of Repatriation relative to the scheme for transferring war skiagrams to an approved public hospital in the capital city in each State, so that they might be used for the instruction of students or for other similar purpose. It appeared that the only public hospital prepared to accept these skiagrams was the Melbourne Hospital.

Remuneration of Medical Officers in Military Hospitals under the Repatriation Department.

THE HONORARY SECRETARY reported that, in accordance with instructions received from the Committee at its last meeting, communications had been addressed to the Repatriation Department, asking for information concerning the rates of pay for medical officers of the resident staff and of the visiting staff of the hospitals which had been taken over from the Department of Defence. A reply had been received, containing all the requisite particulars, from which it appeared that the remuneration of the medical officers had undergone adjustment.

Reorganization of the Defence Medical Service.

At the last meeting a proposal of the New South Wales Branch in regard to the establishment of one medical

service for defence instead of three as at present had been discussed.

THE HONORARY SECRETARY advised that a common letter had been addressed to the Branches, in order that the issue in its simplest form might receive consideration. Replies had been received from the Queensland Branch and from the Western Australian Branch. The former had intimated that its delegates would receive instructions prior to the meeting. The latter approved of the proposal.

DR. W. N. ROBERTSON stated that the Queensland Branch approved of the suggestion that there should be one medical service, but considered that the New South Wales Branch resolution went too far.

MR. G. A. SYME stated that the Victorian Branch was not prepared to advocate that the unified defence medical service should be under one Director-General responsible to a Minister. They approved, however, of a single defence medical service.

DR. H. S. NEWLAND reported that the South Australian Branch was in favour of the proposal.

It was consequently resolved:

> That the proposal that there be one medical service for the Navy, Army and Air Forces be sent to the Prime Minister and that copies be sent to the Minister for the Navy and to the Minister for Defence.

In regard to the question of the proposed modifications in connexion with the compulsory military service for medical students, a letter from the Director-General of Medical Services was read. General Sir Neville Howse did not approve of the suggested alterations.

It was reported that a sub-committee appointed by the Faculty of Medicine of the University of Melbourne had interviewed the Director-General of Medical Services. They had ascertained that, while the proposal that fourth and fifth year students should be exempted from military service on an undertaking being given that they would apply for commissions in the Australian Army Medical Corps immediately after graduation was regarded as impossible, arrangements were being made for medical students during their military training to attend lectures on military medicine and surgery, on military pathology and on military hygiene.

Further correspondence was read dealing with the rate of pay of medical officers who went into camp and who had to engage *locum tenentes* at a cost higher than the existing rate of remuneration. Although the Minister had indicated that this matter would receive the sympathetic consideration of his Department, a satisfactory solution of the difficulty had not yet been found.

The correspondence dealing with the alteration of the age of compulsory retirement for medical officers of the Australian Army Medical Corps was read. After the last meeting of the Federal Committee representations had been made to the Defence Department to the effect that this alteration would deprive the service of the assistance of many senior officers with valuable experience. It was held that the Army Medical Service differed from the other branches of the Defence Forces in regard to the utility of its senior officers. From the replies received, it transpired that the Department had fixed the age of retirement for medical officers of the Australian Army Medical Corps as follows: Captains, 50 years; majors, 55 years; lieutenant-colonels, 56 years; and colonels, 58 years. The officers would be transferred when attaining these ages to the Reserve of Officers, from which the age of retirement was 60 years. Under certain circumstances the services of an officer on the Reserve might be retained until he was 62. Medical officers of the Reserve of Officers and retired medical officers might be called upon to fill various positions in emergency.

The correspondence was received.

Gold Medal of the Federal Committee.

The Queensland Branch had given notice of motion to the following effect:

> That the Federal Committee institute a gold medal, which shall be bestowed from time to time upon a member of the British Medical Association who has rendered signal service to the profession.

The matter had been considered by the several Branches and replies approving of the suggestion had been received from the New South Wales, the South Australian and the Western Australian Branches.

MR. G. A. SYME stated that the Victorian Branch Council wished to have further information concerning the object in view.

DR. W. N. ROBERTSON pointed out that in 1877 the British Medical Association had instituted a medal for distinguished merit. The medal was awarded by the Council to anyone "who shall have conspicuously raised the character of the medical profession, whether by scientific work, by extraordinary professional services or by special services rendered to the Association." The gold medal had been given seventeen times, while a silver medal had been given three times and a bronze medal eight times.

The motion was seconded by DR. H. S. NEWLAND and carried.

At the same time, the Secretary was instructed to ascertain from the Victorian and Tasmanian Branches whether these two Branches approved of the action.

It was further resolved:

> That a sub-committee of two members be appointed to take the necessary steps to obtain a design for the casting of a gold medal of the Federal Committee of the British Medical Association in Australia and estimates of cost.

Name Plates.

The New South Wales Branch Council had given notice of motion as follows:

> That it is undesirable for members to state a specialty or specialties on their name plates.

Replies had been received from the Queensland Branch and from the Western Australian Branch, differing from the recommendation, provided that the practitioner concerned confined his practice exclusively to the specialty named.

A discussion followed and the following resolution was passed:

> That the Federal Committee is of opinion that it is not objectionable for a medical practitioner to indicate on his name plate the specialty in which he practises, provided that he confines his practice to that specialty and has the approval of the Council of his Branch.

The Provision of Therapeutic Sera.

A motion from the Council of the Queensland Branch was presented as follows:

> That the Federal Serum Laboratory be urged to anticipate epidemics by holding stocks of sera available for the treatment of any quarantinable disease, even if their potency be open to question.

It was explained that this motion had been drawn up largely because several experienced medical practitioners in Queensland had demanded serum for the treatment of plague, but had been told that none was available. It was thought that there should be stocks of serum of this kind, notwithstanding differences of opinion as to the therapeutic value of the serum.

It was pointed out that there were six quarantinable diseases, namely, plague, leprosy, typhus, small-pox, yellow fever and cholera. Therapeutic sera had been prepared for plague, cholera and leprosy. In regard to cholera and leprosy, the consensus of opinion was that the sera possessed no curative action. It was further pointed out that the serum for plague prepared according to the method of Haffkine was no longer used in India and other places where plague was endemic. This serum was the form used in the previous epidemic. No therapeutic sera had yet been devised for the three remaining quarantinable diseases.

It transpired during the course of a short discussion that the motion was not intended to have reference to serum which had lost its potency as a result of prolonged storage. With the consent of the meeting, the motion was amended and was carried in the following form:

That the Commonwealth Serum Laboratories be urged to anticipate epidemics by holding stocks of sera available for the treatment of those quarantinable diseases for which a serum has been recommended.

Medical Officers of Insurance Companies.

The Council of the South Australian Branch desired to call the attention of the Federal Committee to the question of the propriety of a practitioner being offered an appointment as chief medical officer to an insurance company on the condition that he become a shareholder in the company.

The subject was fully discussed and it was resolved:

That, in the opinion of the Federal Committee, the insistence that a medical officer to an insurance office shall become a shareholder is undesirable, but under the present conditions it is held not preventible.

Next Meeting of the Federal Committee.

It was resolved that the next meeting of the Federal Committee should be held in Sydney at the end of July, the exact date to be fixed by the Chairman.

Votes of Thanks.

Votes of thanks were accorded to the Council of the Victorian Branch for the use of the Medical Society Hall and for their hospitality and to the Chairman for the manner in which he had conducted the meeting.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

GOLDSWORTHY, NEIL ERNEST, M.B., Mast. Surg., 1921 (Univ. Sydney), Sydney Hospital.

KEM YEE, JAMES FONG, M.B., Mast. Surg., 1921 (Univ. Sydney), Sydney Hospital.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

ACTON, THOMAS, L.R.C.P., 1900 (Lond.), M.R.C.S., 1900 (Eng.), 44, Johnstone Street, Annandale.

CHENHALL, HILTON WILLIAM TILLOCK, M.B., Mast. Surg., 1921 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

DONNELLAN, JOHN JOSEPH, M.B., Ch.M., 1921 (Univ. Sydney), 94, Shadforth Street, Mosman.

ENGLISH, ROBERT JOSEPH, M.B., 1909 (Univ. Sydney), F.R.C.S., 1918 (Edin.), Temora.

FERGUSON, WILLIAM JOHN, M.B., Mast. Surg., 1919 (Univ. Sydney), Ariah Park.

FRASER, MALCOLM BRITNELL, M.B., Mast. Surg., 1921 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

HARVEY, WILLIAM COTTER BURNELL, M.B., Mast. Surg., 1920 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

PERCY, CLARENCE ERNEST, M.B., Ch.M., 1921 (Univ. Sydney), 56, Hereford Street, Glebe.

SAUNDERS, GEORGE LORD, M.B., Ch.M., 1921 (Univ. Sydney), Royal North Shore Hospital of Sydney, St. Leonards.

VAN SOMEREN, BERTRAM, M.B., 1915, Mast. Surg., 1916 (Univ. Sydney), 247, Military Road, Mosman.

THE undermentioned have been elected members of the Western Australian Branch of the British Medical Association:

GILBERT, CHARLES WILLIAM, L.R.C.P. (Lond.), M.R.C.P., 1892 (Eng.), Albany.

GLANVILLE, MARK, M.R.C.S., 1886 (Eng.), L.S.A., 1886 (Lond.), Fremantle.

Correspondence.

THE HEAT LOSSES OF THE BODY CONNECTED WITH SURGICAL OPERATIONS UNDER ETHER ANÆSTHESIA.

SIR: In your issue of February 4, 1922, appears a letter from Professor M. S. Pembrey and Dr. F. E. Shipway criticizing my paper on the heat losses connected with ether anæsthesia. They say they think it necessary to point out that I neglected to take all the factors and available data into account. Then they proceed: "In the first place, it is incorrect to state that 'up to the time of this present study there had not been recorded any measurements of the respiratory ventilation current of men during ether anæsthesia.' A. L. Meyer published in 1914 (*Journal of Physiology*, Volume XLVIII., page 47) the results obtained for hyperpnœa produced in man during the incipient stage of anæsthesia." The damaging intention of this statement is plain enough. And what kind of controversialists Professor Pembrey and Dr. Shipway are will immediately appear. I shall now make the nature of Dr. Meyer's work clear to your readers by quoting his own words: "In the first attempts to produce an hyperpnœa with ether I failed. . . . As the strength of the mixture was increased hyperpnœa resulted. It was also observed that when the experiment was repeated several time in close succession . . . the hyperpnœa became less and less. It was therefore necessary to perform but one or two experiments at a time. . . . In no instance is the response of my respiratory centre very great. It was found that in Dr. Haldane's case the hyperpnœa was far more pronounced." His conclusion is as follows: "Ether in suitable low concentration produces hyperpnœa in one minute. The amount of hyperpnœa varies in different persons; and with higher concentrations the breathing is diminished." It is now apparent to your readers what these experiments were. Two or more men in the laboratory inhaled different strengths of ether for the space of one minute each time. It is, however, quiet obvious that the intention of Professor Pembrey and Dr. Shipway is for your readers to infer that these experiments were measurements of the kind that I said had not been recorded, measurements of the respiratory ventilation current of men during ether anæsthesia comparable with or reasonably similar to those carried out by Dr. Wardlaw and myself and that therefore, either wilfully or ignorantly, I was misleading people by making the claim mentioned. Then, if it is pointed out that they are nothing of the sort, they will reply: "Well, we never actually said they were the same, or even similar; we took care to say that they were results obtained for hyperpnœa produced in man during the incipient stage of anæsthesia." Very clever! But why did they say that my statement was "incorrect"? This is the sort of trick these controversialists are not above using on your readers, who can now judge who has been trying to mislead them, and can have their own opinion as to whether this sort of thing is within the limits of clean controversy.

The rest of their letter will at once be recognized as a reproduction of the sort of argument I had to deal with in reply to Dr. Dyring recently (see THE MEDICAL JOURNAL OF AUSTRALIA, November 19 and December 3, 1921). They differ only in their extreme sourness. My new critics have been deceived by the same fallacy as to the meaning of body temperature. They have brought forward an absolutely identical argument and they have the same contempt for precise measurements, the "mathematical embroideries" of my earlier critic. Their way of putting the same thng is by saying that "the most conclusive test of the heat loss of the body is to be found, not in calculations, but in actual observations of the temperature of the anæsthetized patient." Gwathmey and Davis over again! Well, I have dealt with Gwathmey and Davis. Need I repeat it all? Professor Pembrey and Dr. Shipway have fallen into the same pit.

No, in Professor Pembrey and Dr. Shipway we have two men who do not allow physical facts to interfere with their opinions or to modify the dogmatism of their statements.

If they clash, so much the worse for the facts. They believe in "actual observation of the temperature." They won't be hampered by anybody's calculations. They are practical men. They have no time for theorists, with their scepticisms, their measurings and calculations.

We see, too, that they fall into the same identical fallacy, they find the same identical mare's nest about moistening the respired air that beguiled my former critic. And yet the actual and inevitable physical facts are so perfectly plain to the man who wants to see, that one wonders how intelligent people could escape seeing. But I have dealt with the point sufficiently in my letter of December 3 last, to which I must refer my new critics.

But, notwithstanding all their dislike and contempt, the data are secure enough. The metabolism measurements quoted from Atwater and Benedict have been repeated and confirmed. Castell-Evans' tables and the Smithsonian tables are standard works of reference. My figures are not opinions; they are not guesses.[1] The facts were ascertainable and they have been ascertained and the figures remain indisputable unless or until the data existing in these publications are shown to be wrong or the mathematical calculations shown to be inaccurate; and neither of these tests have been put up by my critics. Let them do this. The "pooh-pooh" method will only serve to remove them from serious consideration as scientific men.

It might perhaps interest Professor Pembrey to know that his attitude of contempt does not appear to be shared by all professors of physiology, for Professor Yandell Henderson, of Yale, has been good enough to write to me expressing a very different opinion.

Professor Pembrey and Dr. Shipway direct our attention to a contribution of their own, published in *Guy's Hospital Reports*, as material which settles the argument. Let us look into this. They record the temperatures taken in the rectum and at other situations in a large number of patients before and after anæsthesia. Morphine and atropine were usually administered to all. One set was anæsthetized by the open ether method, the other set by the warmed ether method, given by Shipway's apparatus. Then they set out the percentage of cases in which there was noted a rise of temperature, a fall or no change. With warm ether, the respective percentages of rise, fall and no change of rectal temperature were 35.8, 44.5 and 19.8, as against 16.6, 76.8 and 8.6 with open ether.

This is the sort of material that satisfies my critics. It is, of course, the same sort of stuff as we have had quoted from Gwathmey and Davis. But let me deal with it a little more. I pointed out in my reply to Dr. Dyring that the body temperature depended on the balance between heat production and heat loss. The warmed ether argument, as presented, depends for its validity on all the other factors being even (or at the worst, known quantitatively), excepting the one variable factor, the temperature of the ether vapour. Therefore (*i.*) the average heat losses from the body per unit of time, as well as (*ii.*) the average heat production per unit of time, would have to be so arranged as to balance in perfectly even equilibrium in both sets of cases. And we may say, further, that (*iii.*) the mode and conditions of etherization would have to be the same in both sets, the only difference being that in one set the ether vapour would be warm, in the other set cold. As to this last condition, we are not told. But we are supplied with information that makes us suspect that the "warmed ether" conditions were not quite as open as the "open ether" conditions. No attempt is made to show how the fallacies derived from (*i.*) and (*ii.*) were excluded. It would have provided a most interesting discussion. Of course, the real fact is that they were not excluded. I think we can be quite sure of that, because it was the discussion of (*i.*) and cognate questions that formed the main subject of my paper, the paper my critics find so extremely unwelcome.

There is, however, another line of examination that can be used in connexion with Professor Pembrey's and Dr. Shipway's observations. Let us take for an illustrative case one such as their No. 92B in Group I., Section A (open ether in patients aged from 16 to 66), where the rectal temperature showed a drop of 1.8° F., or 1° C., after sixty-six minutes' anæsthesia, or, roughly, one hour. We may provisionally assume that the rectal temperature is an approximation to the mean temperature of the body. Let us be generous and assume that in the sixty-six minutes the vapour of something like 500 cubic centimetres of ether was administered. Taking the patient to be a seventy kilogram man and adopting 0.8 as approximately the specific heat of the human body, there was, either by lessening of heat production or by increase of heat loss, or by both together, a negative balance of $0.8 \times 70 = 56$ calories at the end of the anæsthesia. Now, however much the fact may be disliked, we know that the saving of heat or the heat consumed by warming the vapour of 100 cubic centimetres of ether from 0° C. to 33° C., the temperature of respired air, is 0.9 calorie. The heat loss or heat consumption similarly attached to 500 cubic centimetres would therefore be $0.9 \times 5 = 4.5$ calories. Now, if this man had been receiving warmed ether, and the temperature record had shown no fall, we are asked to conclude that the warming of the ether had prevented heat loss and had prevented fall of temperature, or at the very least had been chiefly responsible. Under warmed ether methods the consumption of ether in an hour would seem to be under 100 cubic centimetres (*vide* Dr. Dyring's figures for ether consumption with an apparatus very similar to Dr. Shipway's, THE MEDICAL JOURNAL OF AUSTRALIA, 1918, I., page 474). Put the consumption at 100 cubic centimetres and this, as we have seen, would save a heat loss of 0.9 calories per 33° C. range. And out of this warmed ether factor we have to explain, or rather Professor Pembrey and Dr. Shipway have to explain, a loss or saving of heat equal to 56 calories.

But other of the cases quoted show other rectal temperatures, some a drop of a little, some a drop of more, some no drop at all, and we have just seen enough to show that each tenth of a degree Centigrade up or down makes a difference of 5.6 calories in the calorie balance of the subject. The authors ask us to look at one factor alone for the explanation and that factor a substance that adds or subtracts only about 0.9 calorie for each 100 cubic centimetres used. This is just the same sort of thing that other medical men do when they diet a patient, put him to bed, prescribe a mixture of half a dozen drugs and then ascribe the "cure" to one single constituent of the bottle. We have all seen this done.

Professor Pembrey and Dr. Shipway, however, crown all their other claims in one of their "Conclusions," as follows: "The great practical advantage of the 'warm ether' is that it enables the surgeon to operate in a cooler theatre; the patient can be kept warm without exposing the staff to the depressing effect of high temperatures!"

And yet I was iconoclastic enough to say (and to prove) that the warming of ether could only be regarded as a "decorative addition."

Yours, etc.,

C. E. CORLETTE.

February 9, 1922.

[1] I would like to note here that I have found a printer's error in line 2, column 8, of Table III. of my original article, in the issue of August 6, 1921, at page 102, where 0.309 should read as 0.0309.

CARCINOMA UTERI.

SIR: Dr. Norman McArthur's excellent and essentially practical review of *carcinoma uteri* is distinctly opportune, since cancer is surely increasing its frequency. An opinion, fortified by vast experience and courageously expressed, commands attention. I feel confident that "the lack of diagnostic acumen" in this State is less acute than he has found it in Victoria, yet his censure will do us all good.

During the past three years I have been profoundly impressed by the alertness, early suspicion or early diagnosis and prompt action of many men in connexion with uterine cancer. Five doctors each sent me a case within a very brief period during the latter months of last year. In all I performed hysterectomy. Clinical diagnosis justified the procedure. The history and clinical signs in each case were practically similar. The macroscopic appearance of

the pathological specimens seemed to further justify one's effort, yet the pathologist reported three of the specimens "carcinomatous" and in two "no definite signs of malignancy."

Advanced uterine cancer is so appalling a disease that I am convinced we must not wait until radium can render the operation itself easier and safer, since lymphatic infection very early extends beyond the realms of radial activity. Rather would I support Dr. Norman McArthur in his weighty advice plainly tendered to his juniors. Irregular or excessive uterine bleeding demands the most careful investigation "until it is absolutely certain that cancer is not present." The safest plan is to believe that cancer exists and to conceal that suspicion until you prove that it does not. Dr. McArthur's charge of "'a lack of initiative or of callousness to the slight symptoms indicative of early cancer" must have been well founded to warrant such courageous expression. Further, as a teacher, his criticism is amply justified. It will do good, since no excuse presents for such laxity. Provisional diagnosis lies easily within the capacity of every qualified practitioner. He must not wait until the cervix is rough, friable and bleeding. Immediately conviction leads him from suspicion towards certainty, he should enlist the aid of a specialist or, better still, excise a wedge of tissue one centimetre deep and three centimetres broad and send the specimen to a reliable pathologist. If the cervix appear quite healthy and blood exude therefrom, he should carefully dilate and curette the uterus, drop the specimen in 10% solution of formalin and send it to the laboratory. The microscope is the final test, but the experienced surgeon will not accept a finding the direct antithesis of clinical signs. He knows too well the margin of error arising from the excision of a section from the wrong site.

As surgeons, our best hope lies in the future capacity of the microscopist to diagnose for us a pre-carcinomatous lesion.

The family physician should estimate how many women over thirty-five years of age are on his *clientèle*. He should know that of these one in every twenty-seven, or nearly 4%, unless statistics lie, will eventually die from cancer of the uterus. Whilst concentrating upon the uterus, he should remember, further, that of all the women on his *clientèle* over thirty-five, unless statistics again lie, one woman in every eight will suffer cancer in some organ.

Cooperative effort and public enlightenment is checking the incidence, morbidity and mortality of tuberculosis and venereal disease, yet, in dealing with cancer we lag lamentably behind almost all civilized communities.

I drew attention to this fact at the Sydney Congress, but nothing, so far as I know, has been done to educate the public. Ethics hedge us in. Only corporate bodies can rightly so act. The American Medical Association constituted a Board of Public Instruction for the dissemination of facts bearing upon the disease. Many European countries have done much more and, by so doing, have lessened both the morbidity and mortality of the disease. The public should know that, although scientific investigation is doing a great deal, our only present hope lies in early and complete removal of the disease and that the mortality risk from early operation is almost nil.

We should teach the public that the growth is parasitic, that it lives upon and at the expense of the tissues and that, at first, it is a purely local lesion or growth easy of complete removal. Further, we should ourselves realize that among women 90% of cancers involve the uterus. That of these which bleed at least one-third die within one year after the first reported bleeding, three-fourths within two years and very few, without or with operation, survive at the end of three years.

Dr. McArthur has done well by awakening the rank and file of the profession to a keen sense of duty. Whilst I entirely agree that the Government should assist us in every possible way to fight this dreadful disease, I am more convinced than ever that departmental service will be best rendered by enlightenment of the public, so that its earlier diagnosis by the profession may be accomplished.

Yours, etc.,

WILLIAM T. CHENHALL.

Macquarie Street, Sydney,
February 17, 1922.

Obituary.

HUGH ALEXANDER DE RAVIN.

BY the death of Dr. Hugh Alexander De Ravin at Bendigo on January 18, 1922, the profession of northern Victoria has lost one of its most able and esteemed physicians.

Born at Strathfieldsaye in 1865, one of a family of nine sons and three daughters, Hugh De Ravin received his education at the Bendigo Corporate High School and in due course proceeded to the University of Melbourne, where he graduated as M.B., B.S., in 1886. After qualifying he became assistant resident surgeon at the Bendigo Hospital for a short period, after which he entered into practice in Pyramid Hill, Victoria, where he remained for eleven years.

Although he had become thoroughly established and gained the affectionate regard of his many friends in Pyramid Hill, Hugh Alexander De Ravin felt that he must enlarge his knowledge and to that end he spent two years in London following post-graduate work under several eminent men, work which stood him in good stead for the rest of his life. On returning to his native district he took over the practice of the late Dr. Peebles in Bendigo and retained the connexion for the succeeding twenty years.

He was Consulting Physician to the Bendigo Hospital, President of the local division of the Victorian Branch of the British Medical Association, the Sandhurst Club, Golf and Bowling Clubs, in all of which places his familiar, kindly presence will be greatly missed.

Hugh De Ravin was one whom men instinctively trusted; he was a loyal, good friend in rough or calm, in work or play.

His opinion was always sound and well worth the seeking. He never forgot anything instructive in clinical experience, however far back, and applied it to the case in hand after the manner of his most famous teacher, Jonathan Hutchinson.

His quiet, unassuming manner to all his patients and the kindliness which which was always ready to assist them over their difficulties, endeared him so much that he became to them "the beloved physician."

Being unmarried, Hugh De Ravin naturally became a club man in spare time and he leaves many to mourn his loss, together with his remaining brothers and sisters.

REGINALD MORLEY CLARKE.

THE death of Reginald Morley Clarke at Ballaarat, Victoria, on January 21, 1922, occasioned a great shock to a wide circle of friends within and without the medical profession. Peculiarly sad circumstances attended his decease, for, apparently in his usual health, he had participated in a game of tennis, at the conclusion of which he collapsed and died.

Reginald Morley Clarke was born at Caulfield on December 18, 1889, and was the elder son of the late Mr. J. Clarke and Mrs. Clarke, now of Manningtree Road, Hawthorn. He entered Wesley College in 1902 and throughout his six years at school maintained a happy equilibrium between work and recreation, as the result of which he was more than proficient in his classes and prominent in outdoor games and general activities of school life. The same versatility was a feature of his subsequent record at Queen's College, Melbourne University, where he entered upon his medical course as a resident student in 1908. He attained his degrees of M.B. *et* B.S. at the final examinations in March, 1913, and for the remainder of 1913 and during 1914 he held the appointment of resident medical officer at

the Alfred Hospital, where, as throughout his career, he was deservedly popular and beloved of his fellows.

Then came the call to service overseas and in March, 1915, Reginald Clarke responded to an urgent appeal from the War Office for 100 medical men to augment the numbers of the Royal Army Medical Corps. After a short time on Salisbury Plain he was sent out to a hospital unit in France and later, on his own urgent application to be sent to the front, was attached to a famous Mons brigade, the Forty-Second Royal Field Artillery. He remained with this unit for several months, although repeatedly urged by his colonel to report "unfit." But this was the period of the first Battle of the Somme and the shortage of medical officers was so acute that Reginald Clarke felt that he could not leave his brigade. Eventually he was sent to England with the diagnosis in military jargon of "D.A.H.," which was attributed to overwork and to the fact that he had been for many months in an atmosphere of poison gas. He had lost weight considerably, was repeatedly "boarded," marked "unfit for France, fit for light duties only" and finally, in March, 1917, he was advised to relinquish his commission and return to Australia.

This worried him a great deal and he eventually decided to accept an offer to take charge of Lady Cooper's Hospital for Officers at Hursley, Winchester. He remained there until the hospital was closed in February, 1919.

In spite of ill-health, he decided to work for the Fellowship of the Royal College of Surgeons of England and passed the first examination. He was, however, unable to maintain the close study necessary to complete the final examination.

Shortly after his return, Reginald Clarke purchased the connexion of the late Dr. W. A. Morrison, of Ballaarat, in which city he had been in practice barely twelve months when untimely death overtook him. On every side were heard expressions of shock and regret and not a dissenting voice to the generally expressed opinion that Reginald Clarke was "one of the best." Of him it can be truly said, not less than if he had been killed in action, that he gave his life in the great cause, for there can be no doubt that his health was seriously undermined as the result of his devoted war service.

He married, in March, 1916, Miss Geraldine Cussen, daughter of Mr. John Cussen and niece of Sir Leo. Cussen, to whom, with her three young children, the heart-felt sympathy of the medical profession will be extended.

Books Received.

CHINA AND MODERN MEDICINE: A STUDY IN MEDICAL MISSIONARY DEVELOPMENT, by Harold Balme, F.R.C.S. (Eng.), D.P.H., with Preface by Sir Donald MacAlister, K.C.B., M.D.; 1921. London: United Council for Missionary Education; Post 8vo., pp. 224. Price: 5s.; and in paper cover, 3s. 6d. net.

Medical Appointments.

DR. H. ROGERSON (B.M.A.) has been appointed Acting Superintendent of the Hospital for the Insane at Sunbury, Victoria.

* * * *

DR. R. G. ST. J. NAYLOR has been appointed Acting Superintendent of the Hospital for the Insane at Kew, Victoria.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii..

LUNACY DEPARTMENT, VICTORIA: Junior Medical Officers.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Hampden District Hospital Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 3, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, 6, Bank of New South Wales Chambers, St. George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

MAR. 7.—New South Wales Branch, B.M.A.: Ethics Committee; Executive and Finance Committee.
MAR. 8.—Western Australian Branch, B.M.A.: Council.
MAR. 10.—Queensland Branch, B.M.A.: Council.
MAR. 10.—South Australian Branch, B.M.A.: Council.
MAR. 14.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
MAR. 15.—Western Australian Branch, B.M.A.: Branch.
MAR. 16.—Victorian Branch, B.M.A.: Council.
MAR. 18.—Eastern District Medical Association, New South Wales.
MAR. 22.—South Sydney Medical Association, New South Wales.
MAR. 23.—Brisbane Hospital for Sick Children: Clinical Meeting.
MAR. 24.—Queensland Branch, B.M.A.: Council.
MAR. 29.—Victorian Branch, B.M.A.: Council.
MAR. 30.—South Australian Branch, B.M.A.: Branch.
MAR. 31.—New South Wales Branch, B.M.A.: Annual Meeting.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)